

Virginia Beach

Residential Pattern Book

and Resource Manual

PREmier Homes and
Neighborhoods

Preserve Renew Enhance

City of Virginia Beach

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<http://www.vbgov.com/government/departments/housing-neighborhood-preservation/homeowners/Pages/Pattern-Book.aspx>

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PREMIER HOMES & NEIGHBORHOODS
Preserving, Renewing and Enhancing the Homes and Neighborhoods in Virginia Beach

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And to the citizens of Virginia Beach whose homes are shown throughout this document.

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CHAPTER 1: WELCOME HOME

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Welcome to the City of Virginia Beach Pattern Book

Integral to the success and vitality of any city are the homes and neighborhoods in which its citizens live. Cities that offer a high quality of life tend to attract and retain investment, job opportunities, and a skilled workforce – factors which foster positive growth and regenerate benefits for all residents.

While Virginia Beach is a relatively young city, many of its homes and neighborhoods are nearing the half-century mark. In order for Virginia Beach to continue being a *Community for a Lifetime* we must collectively support neighborhoods that are desirable – places of choice – and maintain a stock of homes that fit a variety of lifestyles and appeal to people at all stages of life.

Understanding the important role that neighborhoods play in sustaining a high quality of life in Virginia Beach, City Council has designated revitalization of neighborhoods as a key priority, and has endorsed a plan to preserve, renew, and enhance homes and neighborhoods throughout Virginia Beach. This Pattern Book provides information, tools and guidance to support residents' participation in this initiative.

Whether you are an experienced professional, are preparing for your first home renovation, or are simply interested in the architectural culture of Virginia Beach, this pattern book is your resource to help you get started. Use this pattern book as a guide for home repairs and renovations, methods to improve the energy efficiency of your home, and much more.



Why is the Preservation of our Homes and Neighborhoods Important?

Lively, safe and beautiful neighborhoods are a key factor contributing to a high quality of life in any city. Vibrant neighborhoods are visually interesting and attractive. They have well-maintained homes, yards, sidewalks, and parks. Residents of vibrant neighborhoods know one another, enjoy living there, and plan to keep their homes indefinitely. At the same time, vibrant neighborhoods do not come to be on their own. They require consistent maintenance and care.

Virginia Beach faces unique challenges with regard to its housing stock. Almost all of the land in the city has been developed, leaving few opportunities for new housing construction. In addition, over half of the existing housing units in Virginia Beach are more than 25 years old. If Virginia Beach is to remain a *Community for a Lifetime*, it will be critical for us to **preserve, renew, and enhance** the existing housing stock for current and future generations of homeowners. As a city, we want to maintain neighborhoods that are *places of choice* – places where people *want* to live, not places where they *have* to live.

Many homes in Virginia Beach are in good repair. Taking a pro-active approach to maintaining our homes will help keep them this way. When residents neglect the maintenance of their own property this can lead to neighborhood deterioration, blight, reduced property values, and eventually a low quality of life. Forgoing necessary home upgrades can also simply make homes unsuitable for future generations of home buyers.

One other important reason to be concerned with neighborhood preservation is that each neighborhood in Virginia Beach has a distinct history and features that make it unique. Maintaining your property, and contributing to the quality of life in your neighborhood, helps to preserve the characteristics that make your neighborhood special and make your neighborhood a desirable place to live.

What is PREmier Homes and Neighborhoods?

PREmier Homes and Neighborhoods is an initiative of the Department of Housing and Neighborhood Preservation (DHNP) that defines a program that supports the **P**reservation, **R**enewal, and **E**nhancement of Virginia Beach homes and neighborhoods. The PREmier program makes available to the public a variety of free resources and tools. The intent of these tools is to help residents:

- Extend the useful life of a home through upgrades and modernizations
- Make enhancements to keep homes desirable, while maintaining neighborhood character and design
- Reinvest resources into neighborhood activities
- Improve the physical condition of neighborhoods
- Improve quality of life

The online Pattern Book constitutes the first phase of the PREmier Homes and Neighborhoods program. More tools will become available in the future.

Your participation in the program is completely voluntary. Even if you access PREmier resources and tools, whether you choose to use them or not is up to you.

How Can PREmier Homes and Neighborhoods Help Me?

The PREmier Homes and Neighborhoods program will offer you streamlined access to free resources and tools that will assist you in developing your own home maintenance plan. These tools will also guide you through an assortment of options to help you create a plan for home improvements that will preserve the architectural style of your home and also fall within your budget, while protecting your investment.



CHAPTER 2: ABOUT THE PATTERN BOOK

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What Is A Pattern Book?

The Pattern Book is a digital resource that provides current and future Virginia Beach residents, professionals, and neighborhood organizations with information to support the maintenance and renovation of homes, as well as information about the characteristics of neighborhoods.

Chapter 3 provides an overview of a selection of residential architectural styles (with a focus on detached, single-family dwelling units), that are common to the City of Virginia Beach, as well as the architectural elements that characterizes each housing style.

Chapter 4 guides Pattern Book users through the basics of home maintenance and repairs. Readers will find an introduction to the elements of the construction process as well as the structural components of a home. Included in this section is also a tool, which lists common home renovations by cost categories. This tool will help you prioritize home renovations, based on your personal budget.

Chapter 5 provides information about specialized types of home design and retro-fit projects. Want to learn how to make your home more energy efficient? Accessible for a handicapped family member? More comfortable for senior residents? Browse this chapter to learn about these and more topics.

In the appendices section you will find a glossary of terms that are frequently used when talking about home construction and

renovation; a pictorial glossary of decorative architectural features; and a collection of websites where you can access more in-depth information about the topics that are covered in the Pattern Book.

Pattern Book

PREmier Homes and Neighborhoods



City of Virginia Beach

Department of Housing and Neighborhood Preservation
<http://www.vb.gov/government/departments/housingneighborhoodpreservation/homeowners/Pages/Pattern-Book.aspx>

Pattern Book Development

The seeds for the City Virginia Beach Pattern Book were sown in 2007 with a report created by the Workforce Housing Subcommittee (WHS). The report identified tactics to preserve and enhance existing housing and neighborhoods, including the development of a design center and a Neighborhood Revitalization Strategy. Out of the WHS, the Planning Commission Subcommittee on Preservation (Preservation Subcommittee) convened in 2008 to address neighborhood preservation and enhancement, as well as affordable housing.

About the Subcommittee*:

- Vision
 - Vibrant, well-maintained neighborhoods where all residents have the opportunity to obtain desirable, safe and affordable housing and enjoy a high quality of life
- Housing Philosophy
 - The preservation of affordability, the preservation and renewal of our existing housing stock and the preservation of the quality of life in our neighborhood are key goals of the City.
- Principles
 - All action is consistent with Comprehensive Plan, which “recognizes the primacy of preserving and protecting the overall character, economic value and aesthetic quality of the stable neighborhoods in the Primacy Residential Area”

- Quality in the design, construction and rehabilitation of housing
- Housing and neighborhoods are available to a diverse range of people, including people of different culture, backgrounds, ages, race, capabilities, life stages, and income
- Diversity, including the type, value and design of housing and neighborhoods, which, in turn help the City meet its goals for quality physical environment, family and youth opportunities and economic vitality
- Equal access to Housing and Neighborhoods
- Insuring affordability for a wide range of households
- Public involvement
- Use of voluntary processes in all aspects of our work
- Goals
 - To develop tools that promote incentives for the voluntary improvement of housing in Virginia Beach that preserve and enhance quality housing and neighborhood character
 - To develop city process that addresses neighborhood preservation and improvement on an ongoing, sustainable basis

**Excerpted from City of Virginia Beach Housing and Neighborhood Preservation Plan, August 2008*

In 2008, City Council made the revitalization of neighborhoods one of its prioritized goals for the city over the next five years and adopted a resolution to endorse the City of Virginia Beach Housing and Neighborhood Preservation Plan. The plan provides recommendations that address a collaborative process for neighborhood preservation and improvement on an ongoing, sustainable basis. It also addresses the types of tools that could be implemented to promote and provide incentives for the voluntary improvement of housing. PRemier Homes and Neighborhoods is the program developed from the plan's recommendations.

From the Vision, Housing Philosophy, Principles, and Goals described in the Preservation Plan of the City of Virginia Beach, the Pattern Book was envisioned and research for its development began in January of 2009. The City of Virginia Beach Comprehensive Plan Policy Document adopted December 8, 2009 identified several goals for the City. One of the goals is Goal-Quality Housing & Neighborhoods and is further described as “Protect the quality of housing and neighborhoods and prevent blight.” One of the policies of this goal was to implement the strategies outlined in the 2008 ‘Housing and Neighborhood Preservation Plan’ to ensure continued neighborhood quality including:

“Creation of ‘pattern book’ to guide general neighborhood design;”

For further information see the City of Virginia Beach Comprehensive Plan Policy Document, which can be found at

<http://www.vbgov.com/government/departments/planning/2009ComPlanProcess/Documents/cp-policy-document-web.pdf> .

Architectural styles found in various neighborhoods were researched and cataloged, lot configurations, site characteristics and zoning among other information, was researched and compiled to develop this resource.



Purpose of the Pattern Book

Houses have many, many components. There is a lot to know about how best to take care of them. And homes don't necessarily come with a set of care instructions upon purchase. Make the Pattern Book your go-to guide for information about home maintenance and improvements.

Remodeling or making major renovations to a home has the potential to be stressful, especially the first time around. The City of Virginia Beach, Department of Housing and Neighborhood Preservation (DHNP) developed the Pattern Book so that residents will be better prepared and more confident as they plan for and make decisions about modifications to their homes.

Developing an appreciation for distinct architectural styles and an understanding of the character of the neighborhood surrounding your home, should inspire your creativity and also help you to make informed decisions when planning for modifications to your home or property. The Pattern Book will guide you in selecting renovations that are appropriate for your housing situation – renovations which will *preserve* the unique architectural style of your home, *renew* the aesthetic quality of your neighborhood, and *enhance* the value of your home.



How to Use the Pattern Book

The Pattern Book provides a lot of information on a variety of topics. Some of these topics may be of greater interest to you than others. The DHNP has published the Pattern Book in an online format in order to make it easier to navigate. The Pattern Book webpage has been structured so that you can easily browse through collections of topics by entering in a page number, search by terms, or simply flip through the pages. Thumbnails, bookmarks, highlights, notes, and use of social media are available for easy reference of researched topics of interest to you.

Throughout the online Pattern Book, you will find a number of links that will lead to external websites developed by government, professional organizations, civic organizations and others. These websites are reliable resources that provide a greater depth of information on topics that are most relevant to you and your home. Simply click on links to access more detailed information about a particular topic.

The Pattern Book contains many architectural, construction-related and other specialized terms. Many of these terms maybe found in the Pattern Book glossary. Understanding these terms found in the Pattern Book will help you gain additional knowledge and understanding of architecture and construction, in your effort to *preserve, renew and enhance* your home.



CHAPTER 3: HOME STYLES

Common Housing Styles & Massing



Common Housing Styles & Massing

This chapter provides an overview of a selection of housing styles as well as the architectural elements that characterize each housing style. To the right is a list of residential architectural styles that are common to the City of Virginia Beach.

Each listed housing style is illustrated and accompanied with information about the style, including: identifying features, massing and composition (assemblage of shapes and forms to develop an appropriate appearance), compatible styles (architectural styles that can be used harmoniously together) and photos of local homes that depict each style. The date ranges (in brackets) following each housing style indicate the period during which construction of that housing style in the United States was most prevalent.

After reviewing this chapter, you should be better able to recognize these types of housing styles in your neighborhood and throughout the City.

Housing styles that are prevalent in Virginia Beach are listed below:

Bungalow / Cape Cod / Craftsman (Bungalow) (1800 –1930)
 Colonial Revival (1876 –1955)
 Dutch Colonial (1625 –1800)
 Georgian Colonial (1690 –1830)
 Neo-Eclectic (1965 –Present)
 Raised Ranch (1930s-1980)
 Ranch (1945 –1980)
 Shed (1960s-1970s)
 Split-level Ranch (1945-1980)

*** Details of the styles listed above may be found on the following pages. Alternate design illustrations may be shown for some styles.**

*** Illustrations of some house styles may be shown at a larger scale to enhance certain housing components.**

*** Note that this short list does not represent the full spectrum of residential architectural styles that exist.**

Architectural Style: BUNGALOW/ CAPE COD / CRAFTSMAN (BUNGALOW)



Images Taken from Realtor®Mag Realtor.org

Cape Cod



Images Taken from Realtor®Mag Realtor.org

Craftsman

Identifying Features:

NOTE: Not all features may exist

<ul style="list-style-type: none"> • One and a half stories 	<ul style="list-style-type: none"> • Most of the living spaces on the ground floor
<ul style="list-style-type: none"> • Low-pitched roof and horizontal shape 	<ul style="list-style-type: none"> • Living room at the center
<ul style="list-style-type: none"> • Connecting rooms without hallways 	<ul style="list-style-type: none"> • Efficient floor plan
<ul style="list-style-type: none"> • Built-in cabinets, shelves, and seats 	

Architectural Style: BUNGALOW/ CAPE COD /
CRAFTSMAN (BUNGALOW)



Bungalow/ Cape Cod



Craftsman (Bungalow)

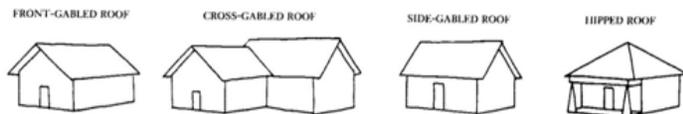
Massing and Composition: BUNGALOW/ CAPE COD / CRAFTSMAN (BUNGALOW)

There are four principal subtypes that can be distinguished:

<ul style="list-style-type: none"> • Front-gabled roof: porches are full or partial-width and evenly divided between those sheltered beneath the main roof and those with separate, extended roofs; usually one-story, but one-and-a-half and two-story structures are not uncommon 	<ul style="list-style-type: none"> • Side-gabled roof: usually one-and-a-half stories with centered shed or gable dormers; porches are generally contained under the main roof, sometimes with a break in slope; two-story structures commonly have added, full-width porches
<ul style="list-style-type: none"> • Cross-gabled roof: porches are varied but the most common is partial-width with a gabled roof 	<ul style="list-style-type: none"> • Hipped roof: this subtype is similar to simple prairie houses, which lack exposed rafters and other typical Craftsman details

Further Details:

Porch roof supports: columns for supporting the porch roofs are distinct and vary in detail; typically short, square upper columns rest upon more massive piers, or upon a solid porch balustrade; columns, piers, or balustrades frequently begin directly at ground level and



extend without break to a level above the porch floor: piers or columns have sloping sides; materials for piers, columns, and solid balustrades include stone, clapboard, shingle, brick, concrete block, stucco, or a combination

Roof-wall junctions: junctions where roof joins the wall are almost never boxed enclosed; roof has a wide eave overhang; along horizontal edges the actual rafter ends are exposed, or false rafter ends are added (sometimes cut into decorative shapes);

Other details: Craftsman door and windows are similar to those used in vernacular prairie houses; gabled dormers are common with exposed rafter ends and braces; common wall cladding is wood clapboard and wood shingles; stone, brick, concrete block, and stucco may be used as well; secondary influences such as Tudor false timbering, Swiss balustrades or Oriental roof forms are also sometimes seen

Compatible Housing Styles:

<ul style="list-style-type: none"> • Prairie 	<ul style="list-style-type: none"> • Cottage
<ul style="list-style-type: none"> • Pueblo 	

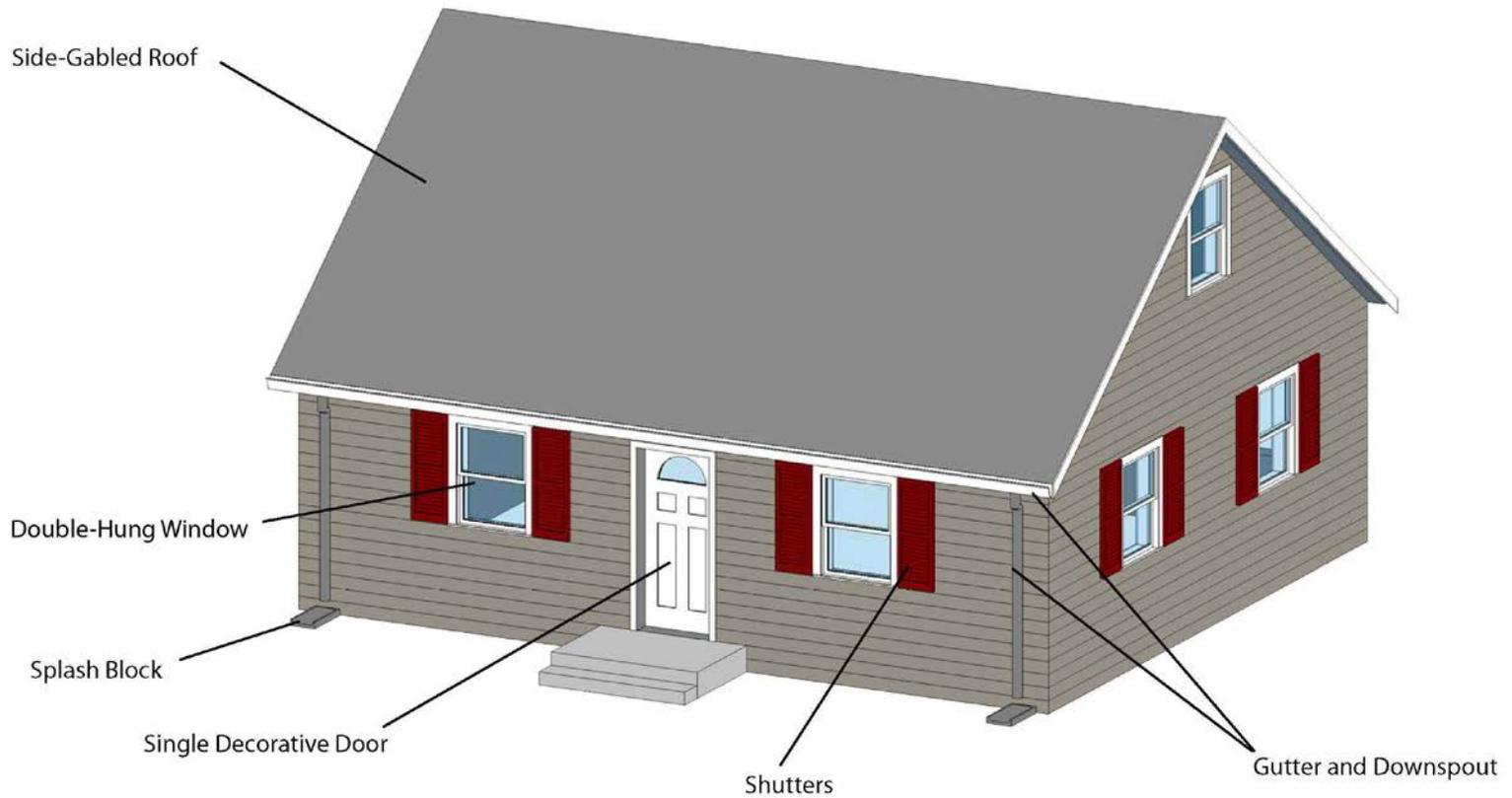
Alternate Designs:

On the following pages you will find illustrations of alternate designs of the Bungalow style. These however, do not depict all of the designs that can represent the Bungalow style. A description of each design illustration is provided to describe alternate design features.

Architectural Style: BUNGALOW/ CAPE COD

Cape Cod Alternate Design 1: Illustration depicts one-story Cape Cod on a raised slab with side-gabled roof.

CAPE COD ALTERNATE DESIGN 1



Architectural Style: **BUNGALOW/ CAPE COD**

Cape Cod Alternate Design 2: Illustration depicts one and half-story Cape Cod on crawlspace with side-gabled main roof and shed roof at dormer.

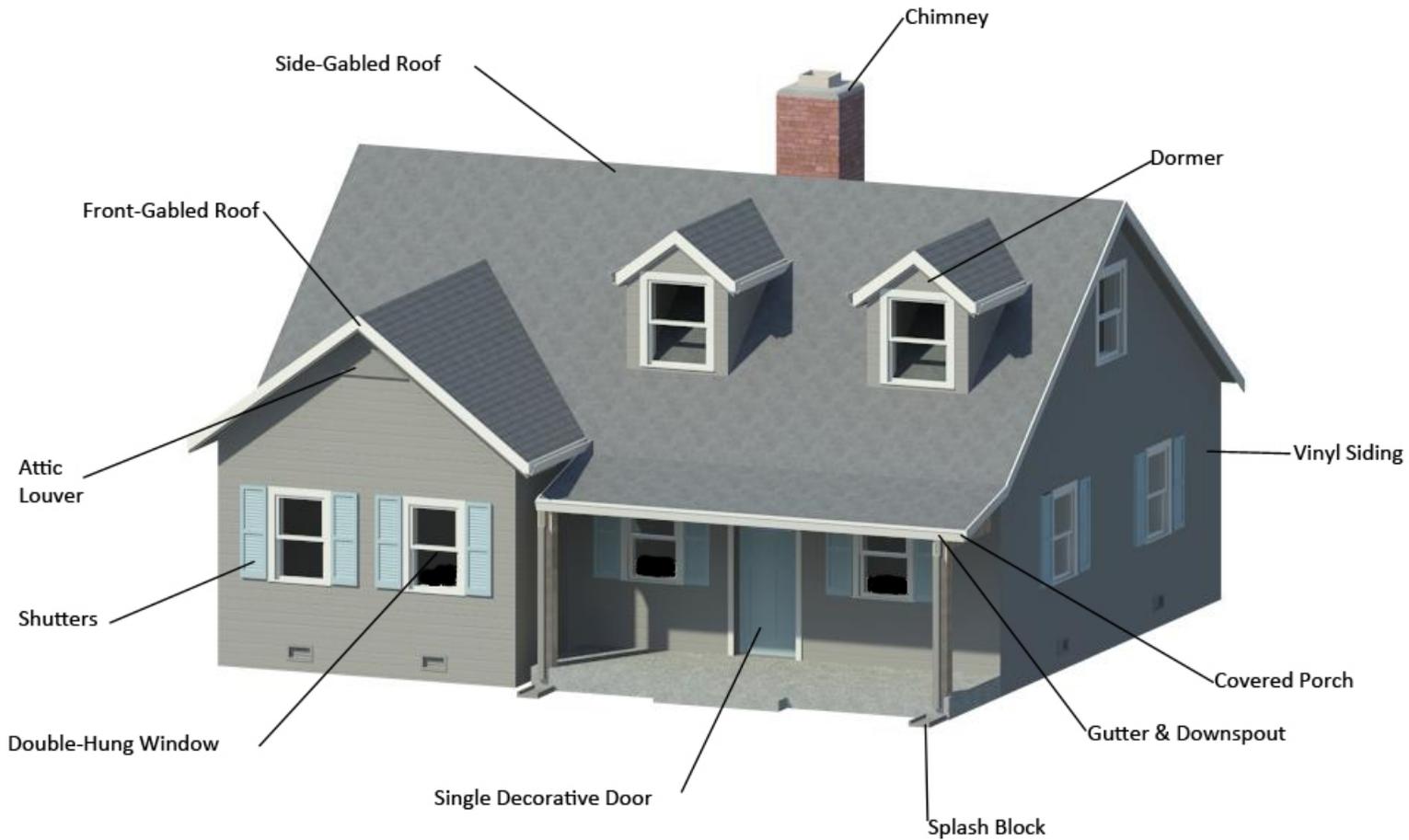
CAPE COD ALTERNATE DESIGN 2



Architectural Style: **BUNGALOW/ CAPE COD**

CAPE COD ALTERNATE DESIGN 3

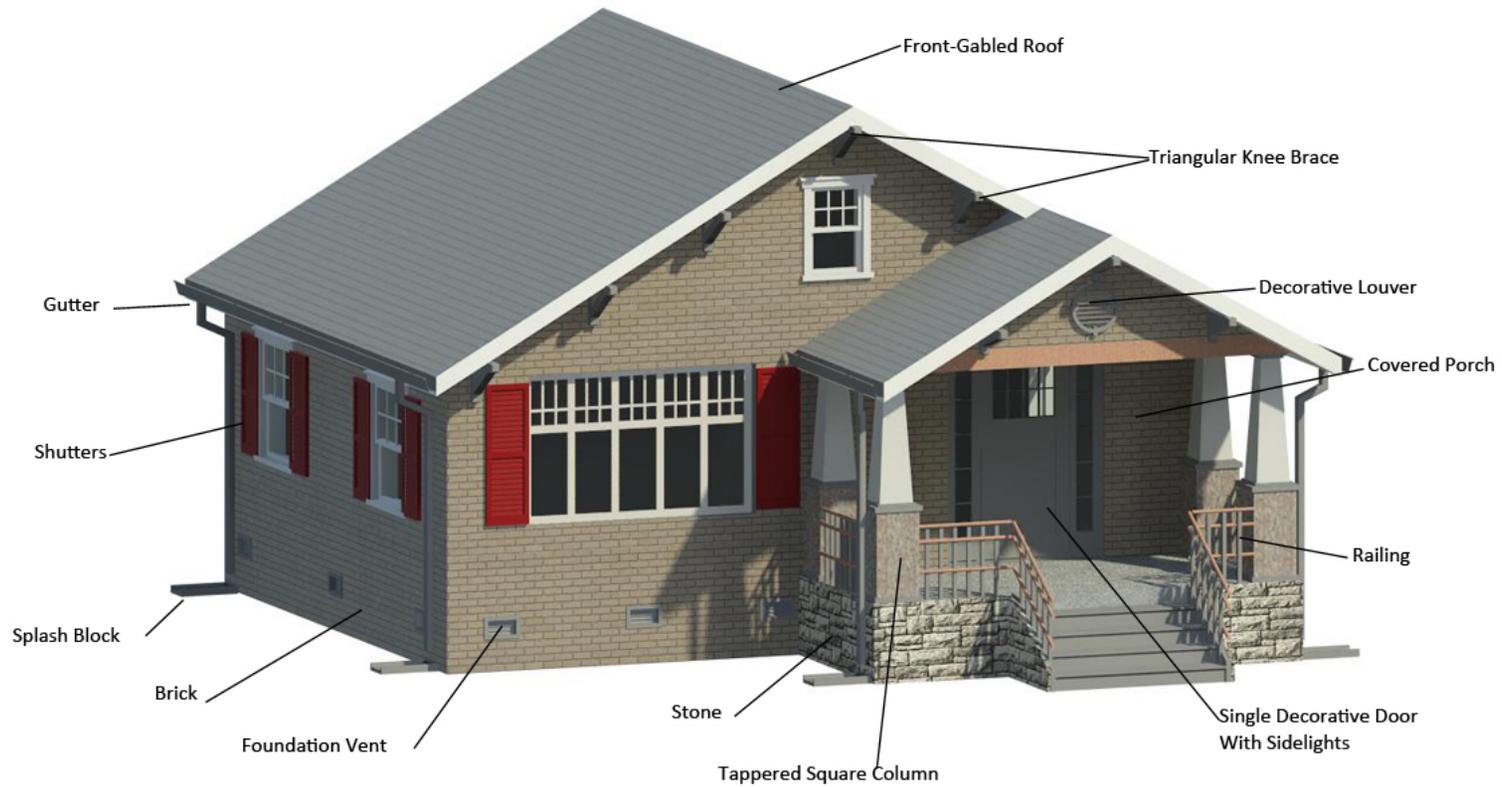
Cape Cod Alternate Design 3: Illustration depicts two-story Cape Cod with side-gabled main roof, front-gabled dormers and shed roof at porch.



Architectural Style: BUNGALOW/
CRAFTSMAN (BUNGALOW)

CRAFTSMAN ALTERNATE DESIGN 1

Craftsman Alternate Design 1: Illustration depicts one-story Craftsman with front-gabled main roof and front-gabled porch roof.



Architectural Style: **BUNGALOW/
CRAFTSMAN (BUNGALOW)**

Craftsman Alternate Design 2: Illustration depicts one-story Craftsman with side-gabled main roof, shed dormer and front-gabled secondary roof.

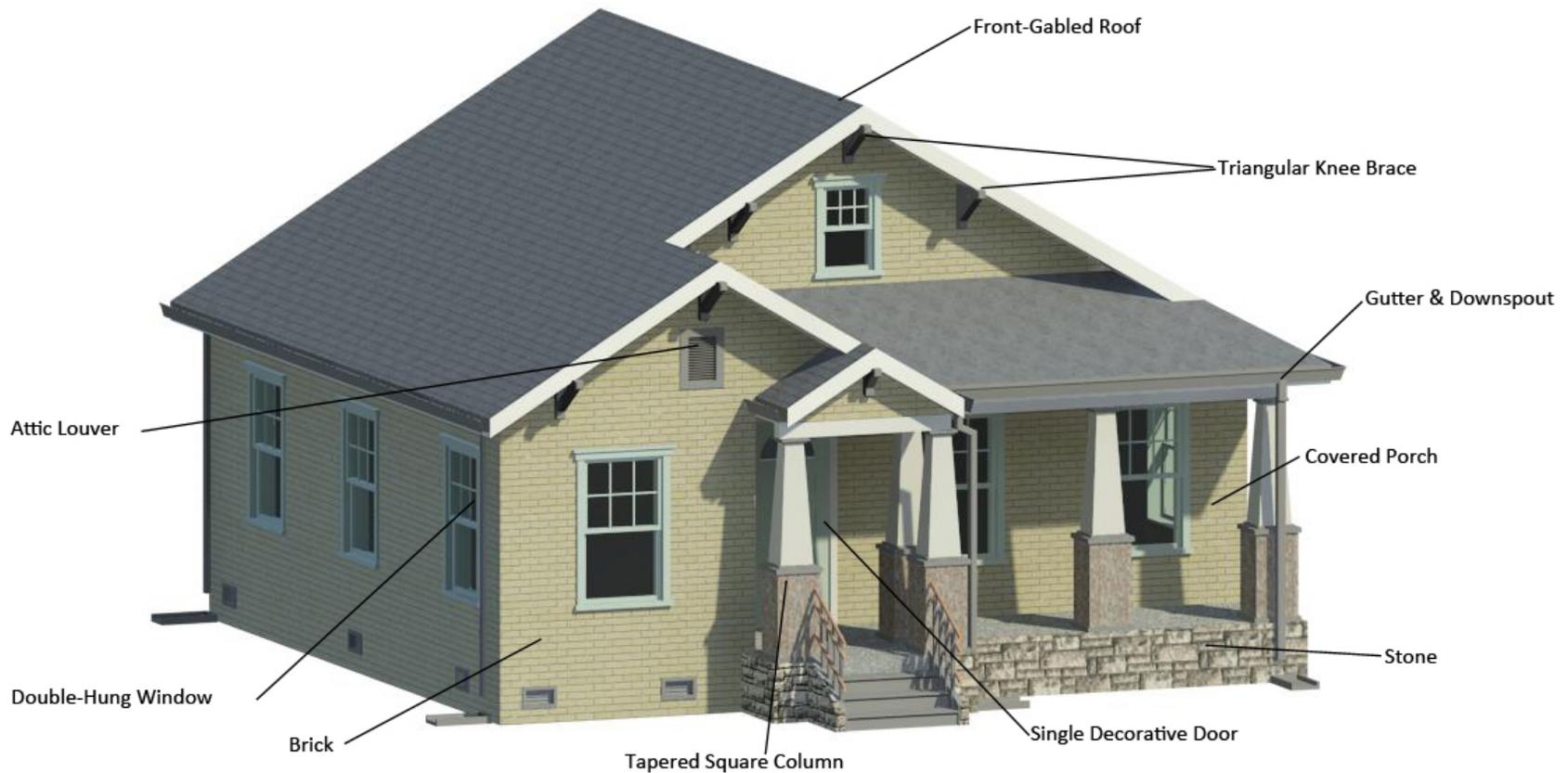
CRAFTSMAN ALTERNATE DESIGN 2



Architectural Style: **BUNGALOW/
CRAFTSMAN (BUNGALOW)**

Craftsman Alternate Design 3: Illustration depicts one-story Craftsman with front-gabled main roof, secondary roof and roof element at stairs and shed roof at porch.

CRAFTSMAN ALTERNATE DESIGN 3



Architectural Style: COLONIAL REVIVAL/ NEO COLONIAL



Images Taken from Realtor®Mag Realtor.org

Identifying Features:

NOTE: Not all features may exist

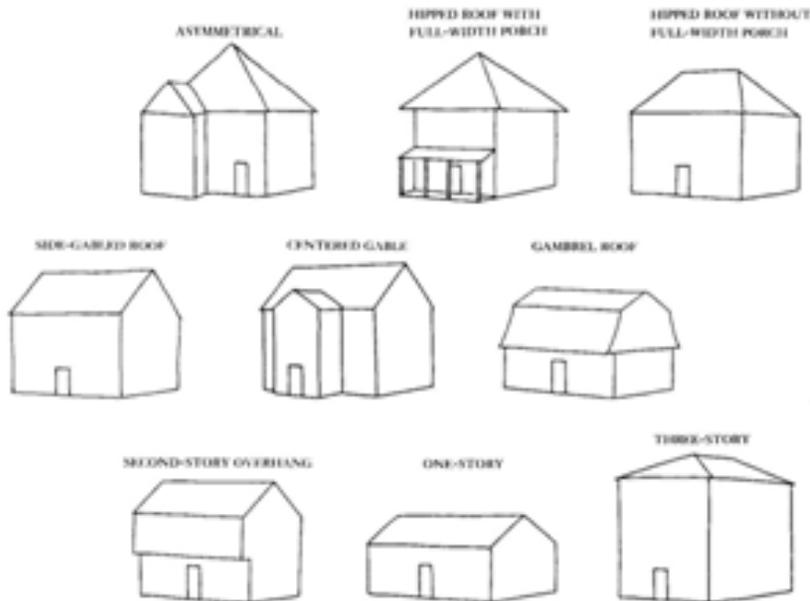
<ul style="list-style-type: none"> • Symmetrical façade 	<ul style="list-style-type: none"> • Rectangular
<ul style="list-style-type: none"> • 2 to 3 stories 	<ul style="list-style-type: none"> • Brick or wood siding
<ul style="list-style-type: none"> • Simple, classical detailing 	<ul style="list-style-type: none"> • Gable roof
<ul style="list-style-type: none"> • Pillars and columns 	<ul style="list-style-type: none"> • Multi-pane, double-hung windows with shutters
<ul style="list-style-type: none"> • Paneled doors with sidelights and topped with rectangular transoms or fanlights 	<ul style="list-style-type: none"> • Temple-like entrance: porticos topped by pediment
<ul style="list-style-type: none"> • Dormers 	<ul style="list-style-type: none"> • Center entry-hall floor plan
<ul style="list-style-type: none"> • Living areas on the first floor and bedrooms on the upper floors 	<ul style="list-style-type: none"> • Fireplaces



Massing and Composition: COLONIAL REVIVAL/ NEO COLONIAL

The Colonial Revival / Neo Colonial Style is usually a simple box with a hipped, gabled, or even mansard roof. Projecting wings may be added to the front, side, or back of the center mass. Nine principal subtypes can be distinguished:

• Asymmetrical	• Side-gabled roof
• Hipped roof without full-width porch	• Hipped roof with full-width porch
• Centered gable	• Gambrel roof
• Second-story overhang	• One-story
• Three-story	



Façade Composition:

In Colonial Revival / Neo Colonial, the front door has overhead fanlights or sidelights and is usually accentuated with a decorative crown, or pediment. The entryway may even extend forward and be supported by columns to form an entry porch, which is usually centered on the facade. Windows appear symmetrically balanced and may occur in adjacent pairs. First floor windows may be taller than second floor windows.

Compatible Housing Styles:

• Dutch Colonial	• Garrison Colonial
• Saltbox Colonial	• Spanish Colonial Revival

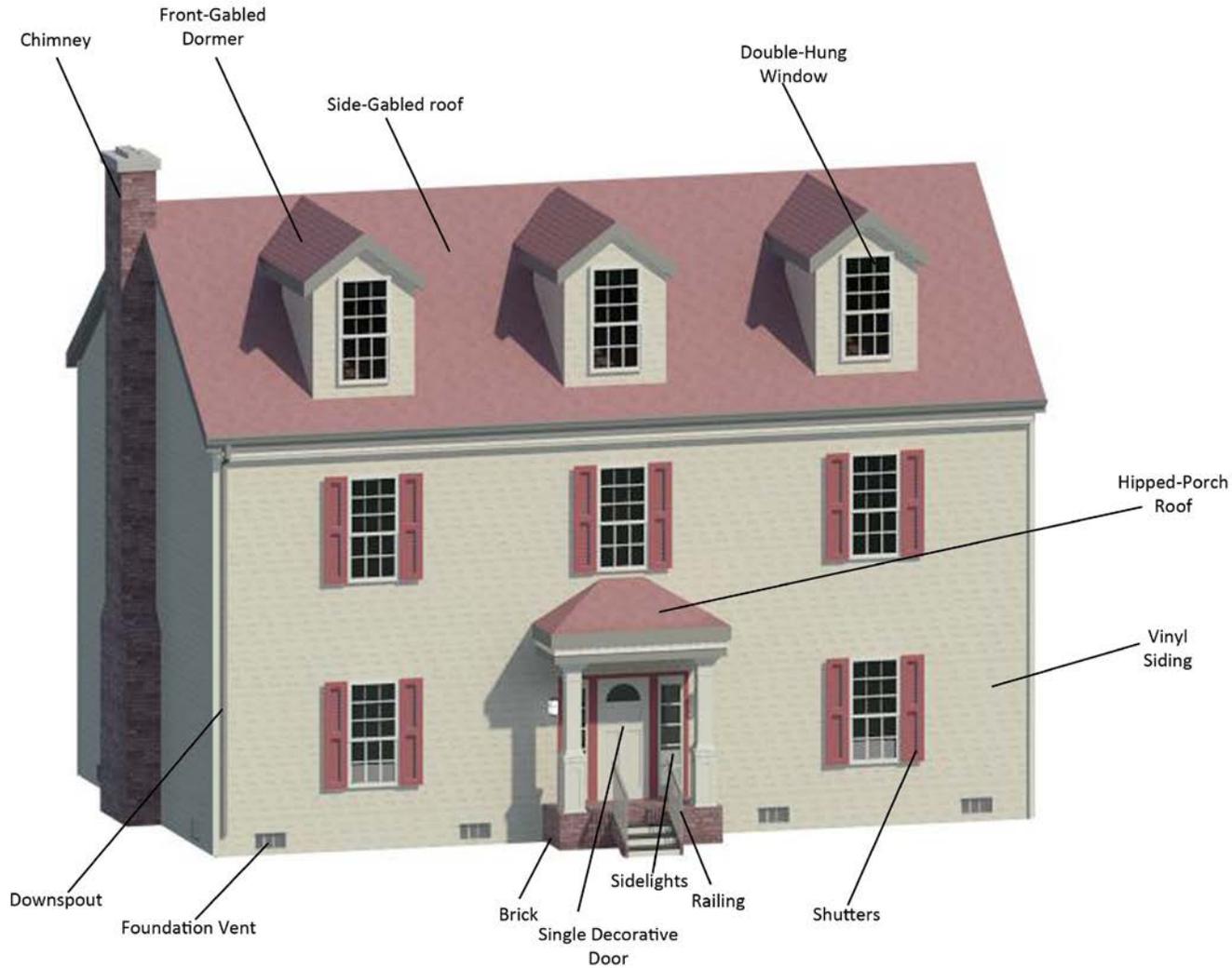
Alternate Designs:

On the following pages you will find illustrations of alternate designs of the Colonial Revival/ Neo Colonial style. These however, do not depict all of the designs that can represent the Colonial Revival style. A description of each design illustration is provided to describe alternate design features.

Architectural Style: COLONIAL REVIVAL/ NEO COLONIAL

COLONIAL REVIVAL/ NEO COLONIAL ALTERNATE DESIGN 1

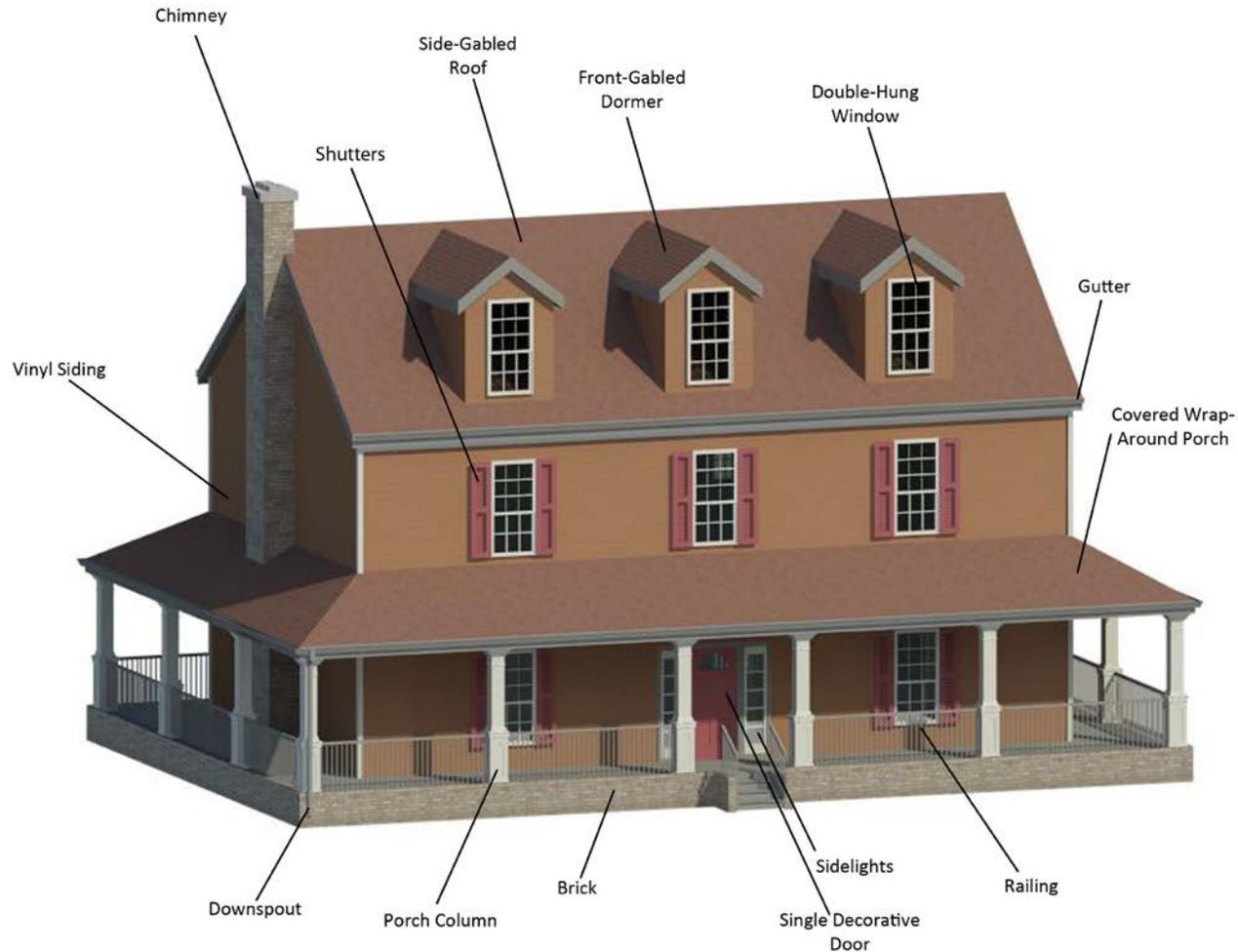
Colonial Revival/ Neo Colonial Alternate Design 1:
Illustration depicts two-story Colonial Revival with side-gabled main roof, front-gabled dormers and hipped roof at porch.



Architectural Style: COLONIAL REVIVAL/ NEO COLONIAL

COLONIAL REVIVAL/ NEO COLONIAL ALTERNATE DESIGN 2

Colonial Revival/ Neo Colonial Alternate Design 2:
Illustration depicts two-story Colonial Revival with side-gabled main roof, front-gabled dormers and hipped roof at wrap-around porch.



Architectural Style: DUTCH COLONIAL



Images Taken fromRealtor®Mag Realtor.org



Identifying Features:

NOTE: Not all features may exist

<ul style="list-style-type: none"> • Broad gambrel roof with flaring eaves that extend over the porches, creating a barn-like effect 	<ul style="list-style-type: none"> • End walls are generally of masonry
<ul style="list-style-type: none"> • Chimney usually located on one or both ends 	<ul style="list-style-type: none"> • Double-hung sash windows with outward swinging wood casements
<ul style="list-style-type: none"> • Dormers with overhangs 	<ul style="list-style-type: none"> • A central Dutch double doorway (replaced by single-unit doors)



Massing and Composition: DUTCH COLONIAL

Dutch Colonial is a simple box shape constructed in four distinctive house types:

<ul style="list-style-type: none"> • Urban tradition—brick walls; steeply pitched 	<ul style="list-style-type: none"> • Parapet roof with paired end chimneys
<ul style="list-style-type: none"> • Rural tradition 	<ul style="list-style-type: none"> • Eaves without flares—stone walls; eaves with little or no overhang

URBAN TRADITION
brick walls; steeply pitched,
parapeted roof with
paired end chimneys



RURAL TRADITION,
UNFLARED EAVES
stone walls (rarely
wooden); eaves with
little or no overhang



RURAL TRADITION,
FLARED EAVES
stone walls (rarely
wooden); flared (slightly
flattened) eave overhang



Further Details:

Walls

- Cut stone (end walls), brick, wood shingle, or weatherboard-covered wooden framing

Windows

- Double-hung sash windows (one movable sash) with outward swinging casement
- Four-over-four, six-over-six
- Rectangular tops

- Arranged in pairs or threes
- Shutters
- Dormers with shed-like overhangs

Shutters

- Sized to match window
- May or may not appear on this house style
- May or may not be operable

Doors

- Paneled wood, fiberglass, or steel

Roof

- Gambrel roofs with short, flattened upper slopes
- Gable roofs of normal pitch
- Steeply pitched gable at Urban Traditional Style

Lighting

- Wall and post lanterns, sconces, chandeliers (bronze, copper, terne, American hardwoods)

Compatible Housing Styles:

<ul style="list-style-type: none"> • American Foursquare 	<ul style="list-style-type: none"> • Georgina Colonial
<ul style="list-style-type: none"> • Colonial Revival 	<ul style="list-style-type: none"> • American Colonial Styles

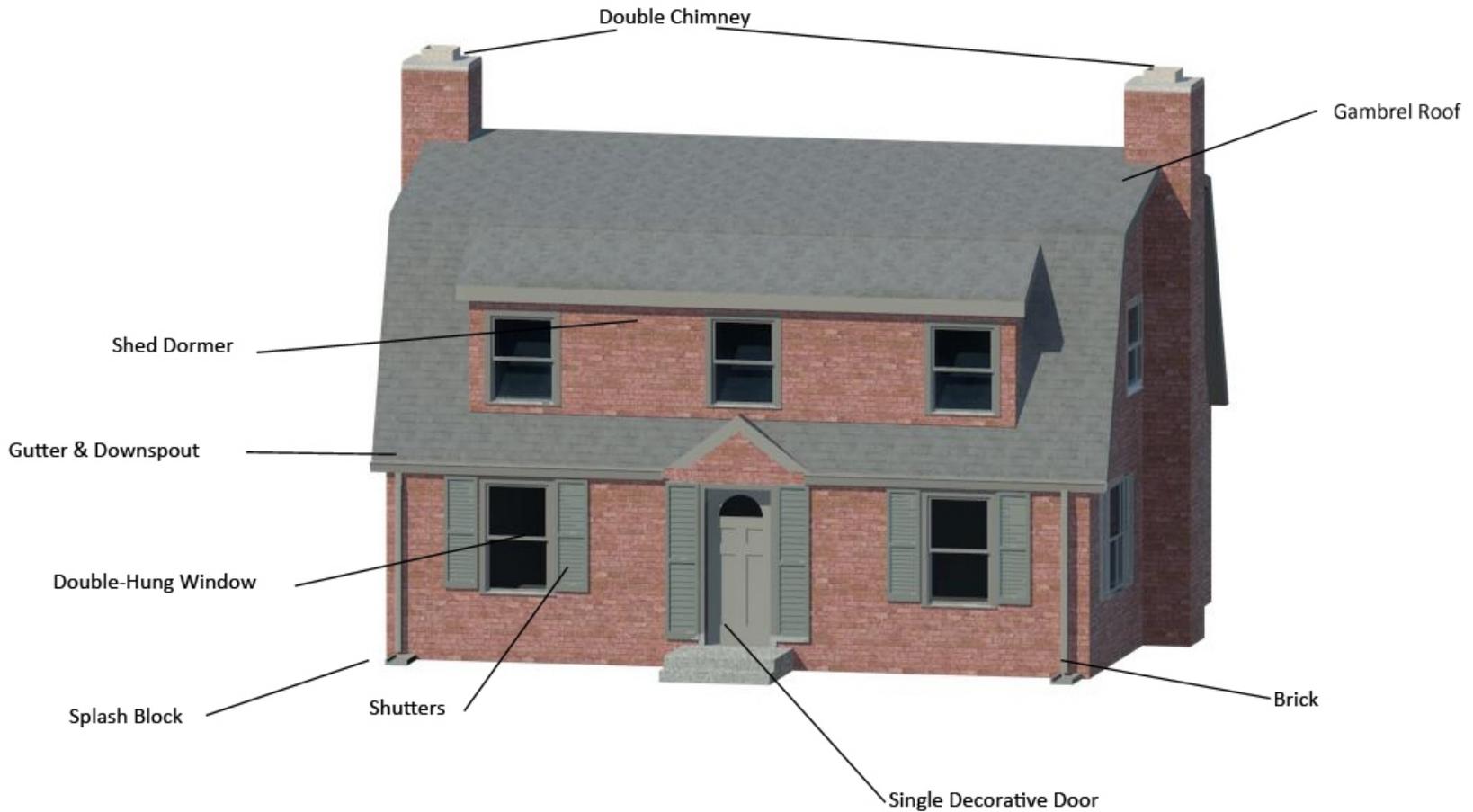
Alternate Designs:

On the following pages you will find illustrations of alternate designs of the Dutch Colonial style. These however, do not depict all of the designs that can represent the Dutch Colonial style. A description of each design illustration is provided to describe alternate design features.

Architectural Style: **DUTCH COLONIAL**

DUTCH COLONIAL ALTERNATE DESIGN 1

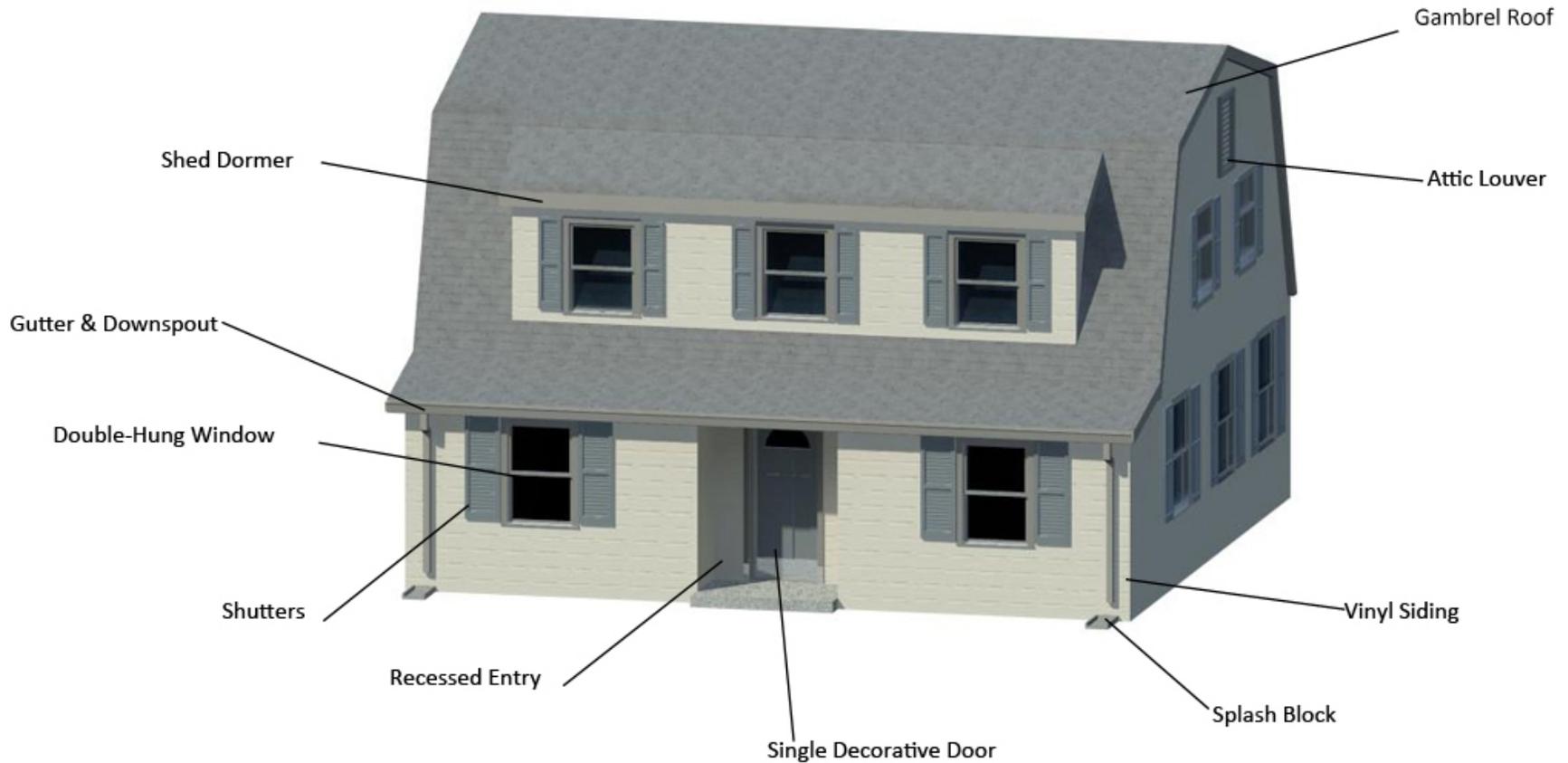
Dutch Colonial Alternate Design 1: Illustration depicts two-story Dutch Colonial with side-gambrel main roof, shed dormer and front-gabled roof element at stoop.



Architectural Style: DUTCH COLONIAL

DUTCH COLONIAL ALTERNATE DESIGN 2

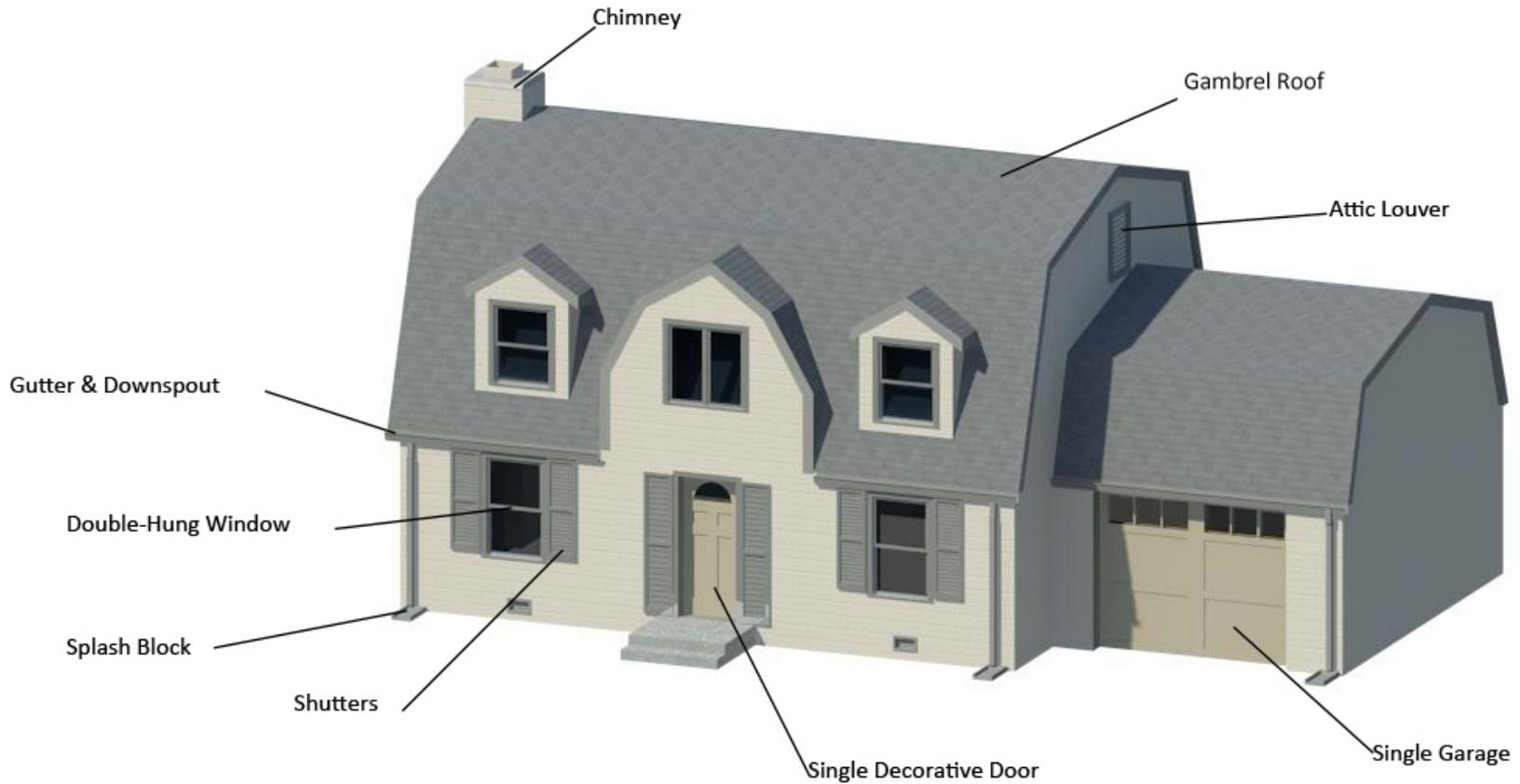
Dutch Colonial Alternate Design 2: Illustration depicts two-story Dutch Colonial with side flared gambrel main roof, shed dormer and recessed entry.



Architectural Style: DUTCH COLONIAL

DUTCH COLONIAL ALTERNATE DESIGN 3

Dutch Colonial Alternate Design 3: Illustration depicts two-story Dutch Colonial with side-gambrel main and secondary roofs, gambrel roof element at stoop and front-gabled dormers.



Architectural Style: GEORGIAN COLONIAL



Images Taken from Realtor®Mag Realtor.org



Identifying Features:

NOTE: Not all features may exist

<ul style="list-style-type: none"> • Square, symmetrical shape 	<ul style="list-style-type: none"> • Paired chimneys
<ul style="list-style-type: none"> • Paneled front door at center 	<ul style="list-style-type: none"> • Medium pitched roof
<ul style="list-style-type: none"> • Decorative crown over front door 	<ul style="list-style-type: none"> • Minimal roof overhang
<ul style="list-style-type: none"> • Flattened columns on each side of door 	<ul style="list-style-type: none"> • Nine or twelve small window panes in each window sash
<ul style="list-style-type: none"> • Five windows across front 	<ul style="list-style-type: none"> • Dentil molding along the eaves



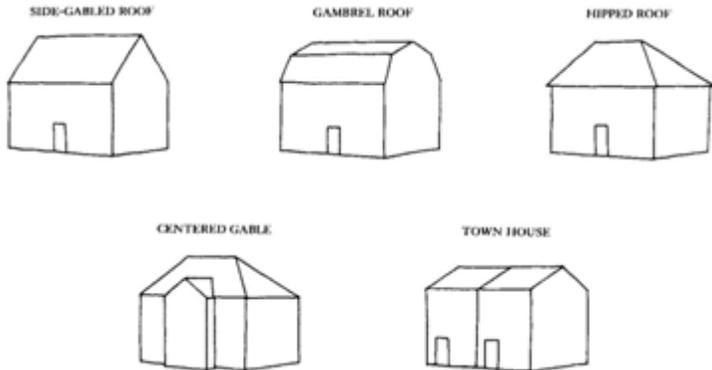
Massing and Composition: GEORGIAN COLONIAL

The Georgian house is usually a simple one or two story box, two rooms deep, with door and windows in strict symmetry. Five principal subtypes can be distinguished:

• Side-gabled roof	• Centered gable
• Gambrel roof	• Town house
• Hipped roof	

Façade Composition:

The Georgian Colonial style is characterized by a symmetrical and balanced placement of doors and windows. Entrance doors are typically centered and are recessed into the facade. Windows occur singularly and aligned in horizontal and vertical rows. The front door is usually paneled and capped by an elaborate decorative crown supported by decorative pilasters. Cornices are emphasized with decorative moldings.



Architectural Style: GEORGIAN COLONIAL

Further Details:

Walls

- Wood frame, stone, or stucco construction
- Shingle, clapboard, or brick veneer sheathing
- Corners of the building are decorated with wooden quoins to imitate stone
- Brickwork occasionally incorporates a horizontal belt course between the first and second floors (change in brick pattern)

Windows

- Double-hung sash windows, along with small panes
- Fixed upper sashes and movable lower sashes
- Most commonly nine or twelve panes per sash separated by thick muntins
- Windows aligned horizontally and vertically in symmetrical rows, never in adjacent pairs
- Decorative window crowns have changed brick patterns, or simple arches above the windows

Shutters

- Sized to match window
- May or may not appear on this house style
- May or may not be operable

Doors

- Paneled front door, usually centered and capped by an elaborate decorative crown (entablature) supported by decorative wooden pilasters (flattened columns) or brick patterns
- Usually with a row of small rectangular panes of glass beneath the crown, either within the door or in a transom just above

- Houses may have the door frame ornamentation extended forward to form an entrance porch

Roof

- A side-gabled roof with dormers is common
- Balustrades embellished with decorative molding and trim

Lighting

- Wall and post lanterns, sconces, chandeliers (bronze, copper, and American hardwoods)

Compatible Housing Styles:

• Colonial Revival	• Federal
• Antebellum Architecture	• American Colonial Styles

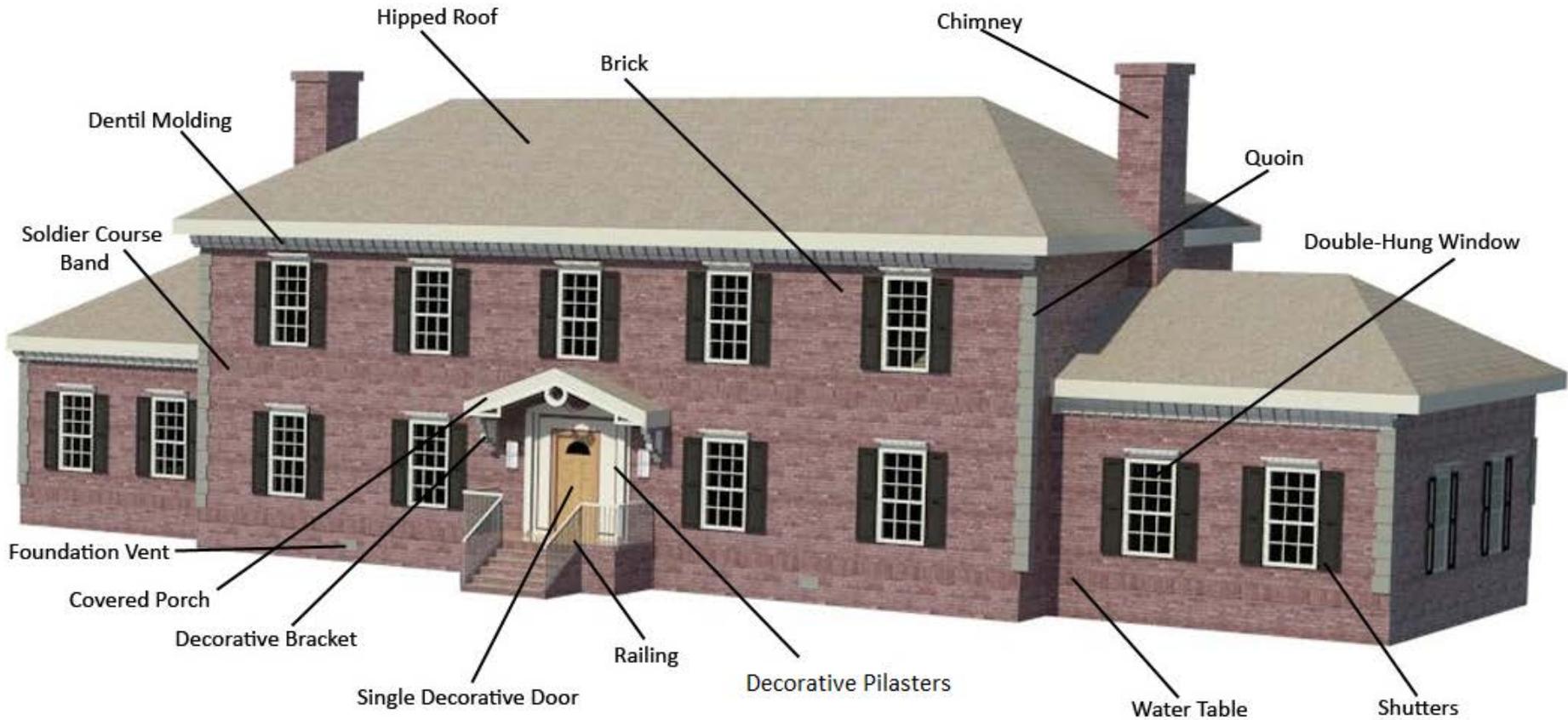
Alternate Designs:

On the following pages you will find illustrations of alternate designs of the Georgian Colonial style. These however, do not depict all of the designs that can represent the Georgian Colonial style. A description of each design illustration is provided to describe alternate design features.

Architectural Style: **GEORGIAN COLONIAL**

GEORGIAN COLONIAL ALTERNATE DESIGN 1

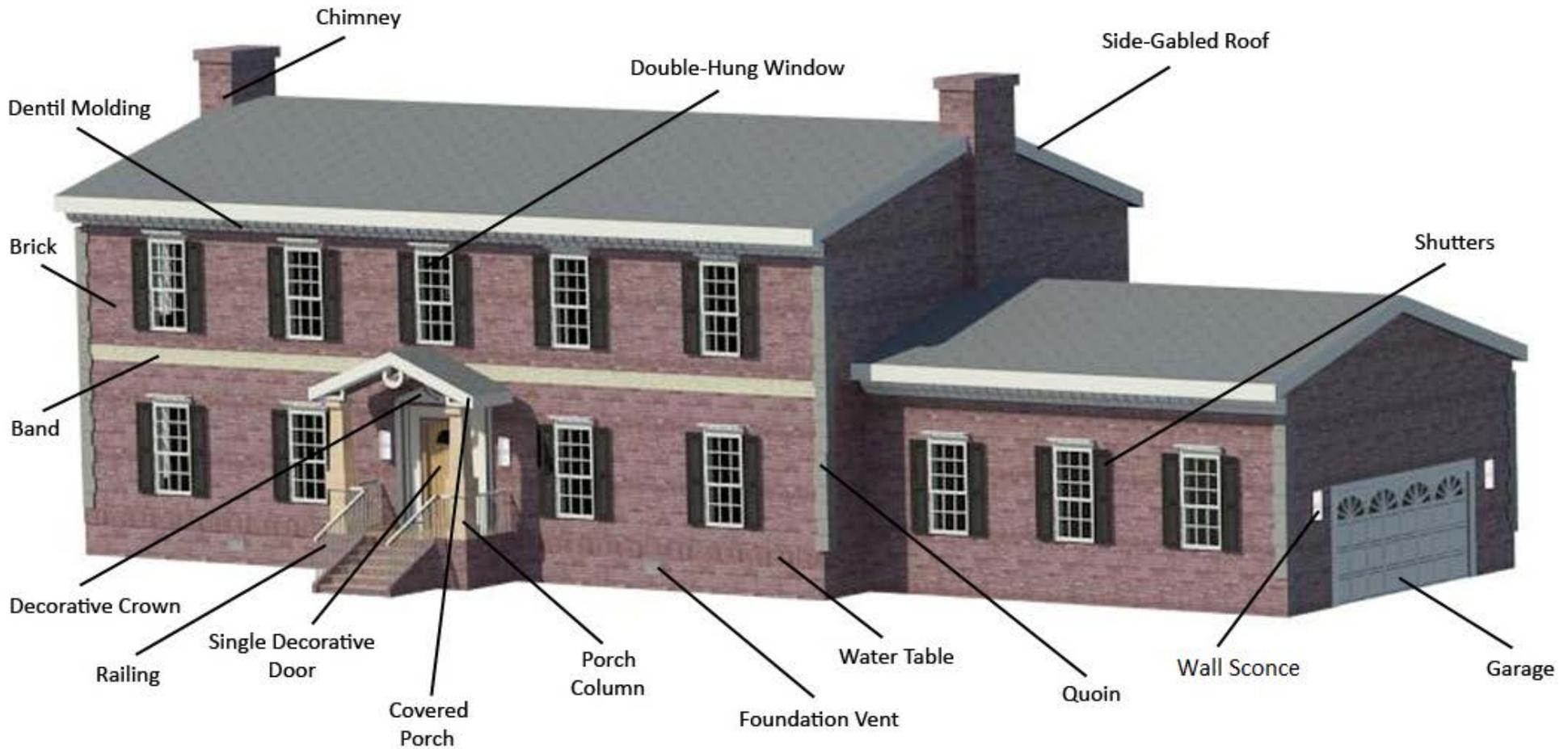
Georgian Colonial Alternate Design 1: Illustration depicts two-story Georgian Colonial with hipped main and secondary roofs and front-gabled roof element at stoop.



Architectural Style: **GEORGIAN COLONIAL**

GEORGIAN COLONIAL ALTERNATE DESIGN 2

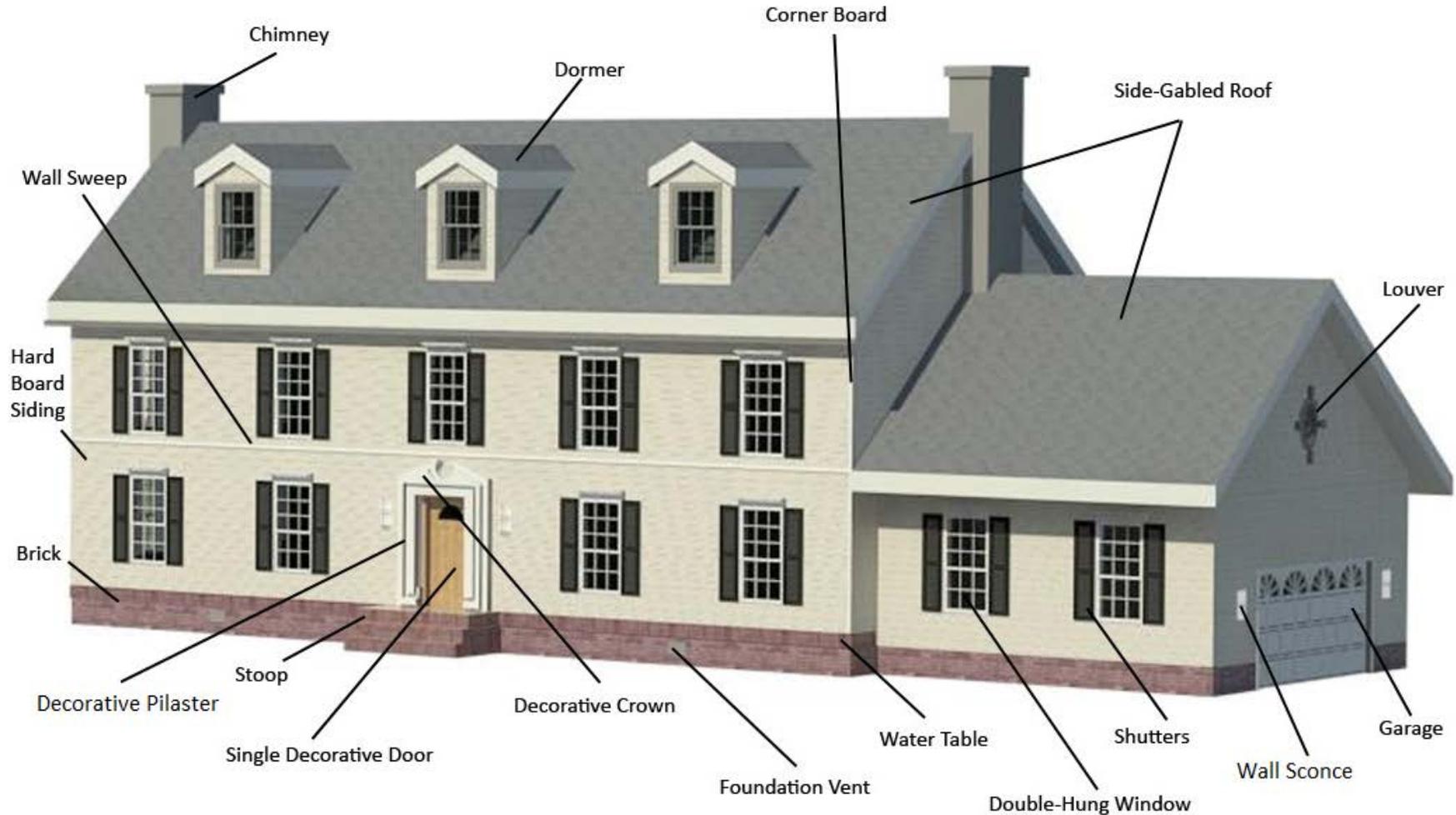
Georgian Colonial Alternate Design 2: Illustration depicts two-story Georgian Colonial with side-gabled main and secondary roofs and front-gabled roof over porch stoop.



Architectural Style: **GEORGIAN COLONIAL**

GEORGIAN COLONIAL ALTERNATE DESIGN 3

Georgian Colonial Alternate Design 3: Illustration depicts two-story Georgian Colonial with side-gabled main and secondary roofs, front-gabled dormers and uncovered stoop.



Architectural Style: NEO-ECLECTIC



Identifying Features:

NOTE: Not all features may exist

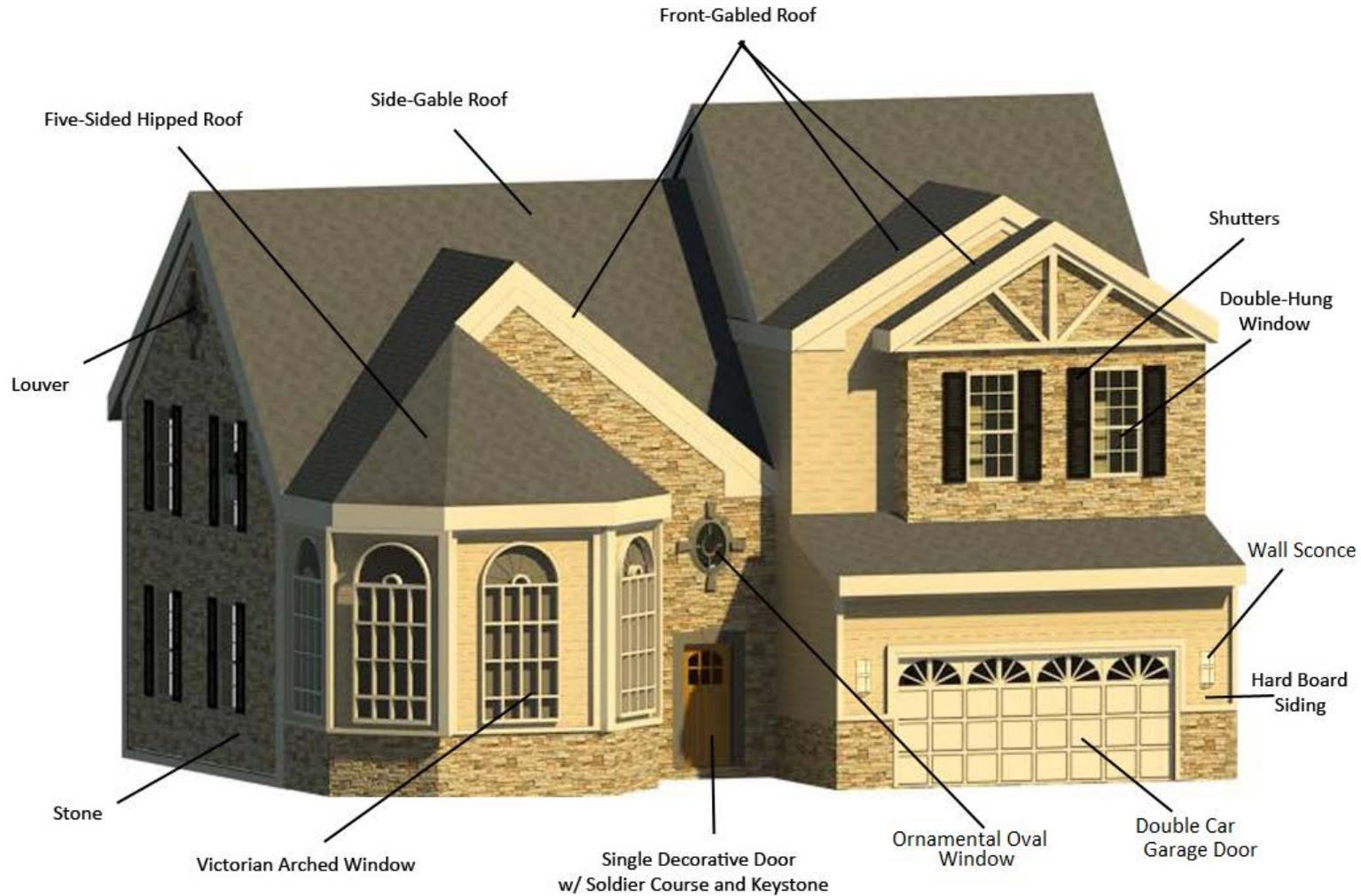
<ul style="list-style-type: none">• Constructed in the 1960s or later	<ul style="list-style-type: none">• Historic styles imitated using modern materials like vinyl or imitation stone
<ul style="list-style-type: none">• Brick, stone, vinyl, and composite materials combined	<ul style="list-style-type: none">• Details from different periods of architectural house styles



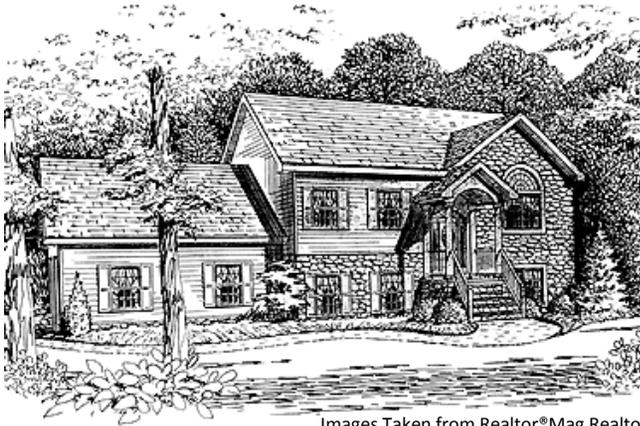
Architectural Style: **NEO-ECLECTIC**

NEO-ECLECTIC ALTERNATE DESIGN 1

Neo-Eclectic Alternate Design 1: Illustration depicts two-story Neo-Eclectic with side-gabled main roof, front-gabled secondary roof, five-sided hipped tertiary roof, shed roof at garage, and uncovered entrance.



Architectural Style: RAISED RANCH/ SPLIT FOYER



Images Taken from Realtor®Mag Realtor.org

Identifying Features:

NOTE: Not all features may exist

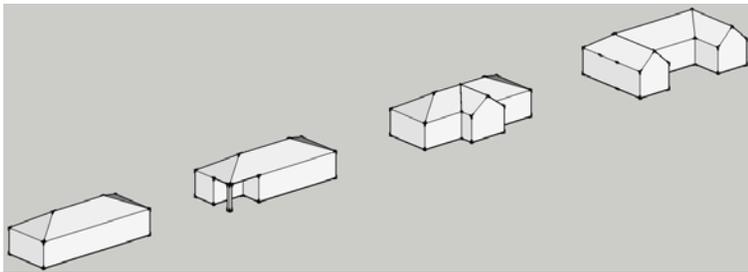
<ul style="list-style-type: none"> • Two stories 	<ul style="list-style-type: none"> • Garage commonly attached
<ul style="list-style-type: none"> • Partially submerged basement with finished rooms and windows 	<ul style="list-style-type: none"> • Low-pitched gable roof
<ul style="list-style-type: none"> • Asymmetrical 	<ul style="list-style-type: none"> • Large windows: double-hung, sliding, and picture
<ul style="list-style-type: none"> • Sliding glass doors leading to a back yard patio 	<ul style="list-style-type: none"> • Little decorative detailing, aside from decorative shutters and porch-roof supports
<ul style="list-style-type: none"> • Entrance foyer located between first and second floors 	



Massing and Composition: RAISED RANCH/ SPLIT FOYER

Raised Ranch is characterized as being a simple two-story rectangular, box shape. It has been adapted to take on a variety of forms. Various styles may be applied to its exterior. While a traditional Ranch house may only be one-story, a Raised Ranch raises the roof to provide extra living space. Unlike the split level, which has three levels, Raised Ranch does not have more than two levels.

Design guidelines for renovation and remodeling would be similar to those for other two story houses. Additions would normally set back from the front façade of the main house and usually would have a lower roof line.



Compatible Housing Styles:

• Ranch	• Split-Level Ranch
• Contemporary	• Minimal Traditional
• Shed	

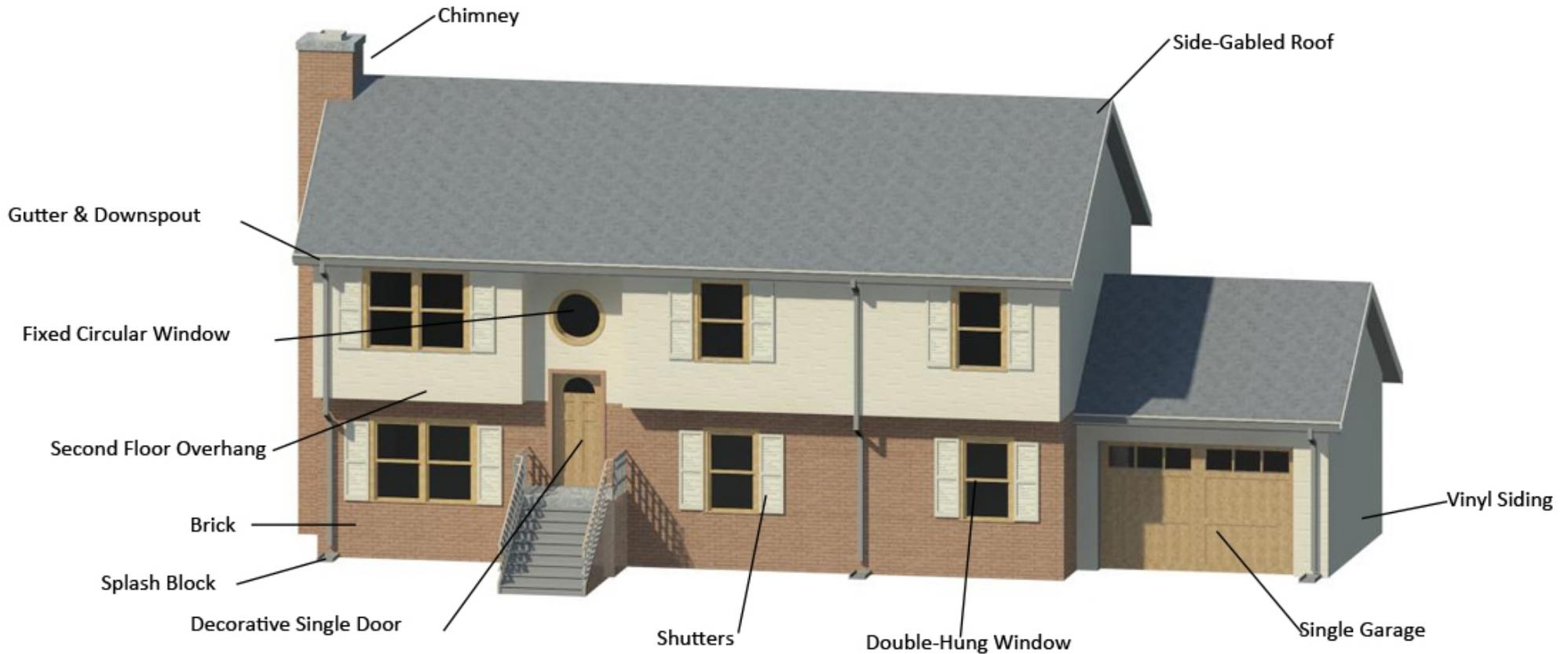
Alternate Designs:

On the following pages you will find illustrations of alternate designs of the Raised Ranch style. These however, do not depict all of the designs that can represent the Raised Ranch style. A description of each design illustration is provided to describe alternate design features.

Architectural Style: RAISED RANCH/ SPLIT FOYER

Raised Ranch Alternate Design 1: Illustration depicts two-story Raised Ranch with side-gabled main and secondary roofs and uncovered stoop.

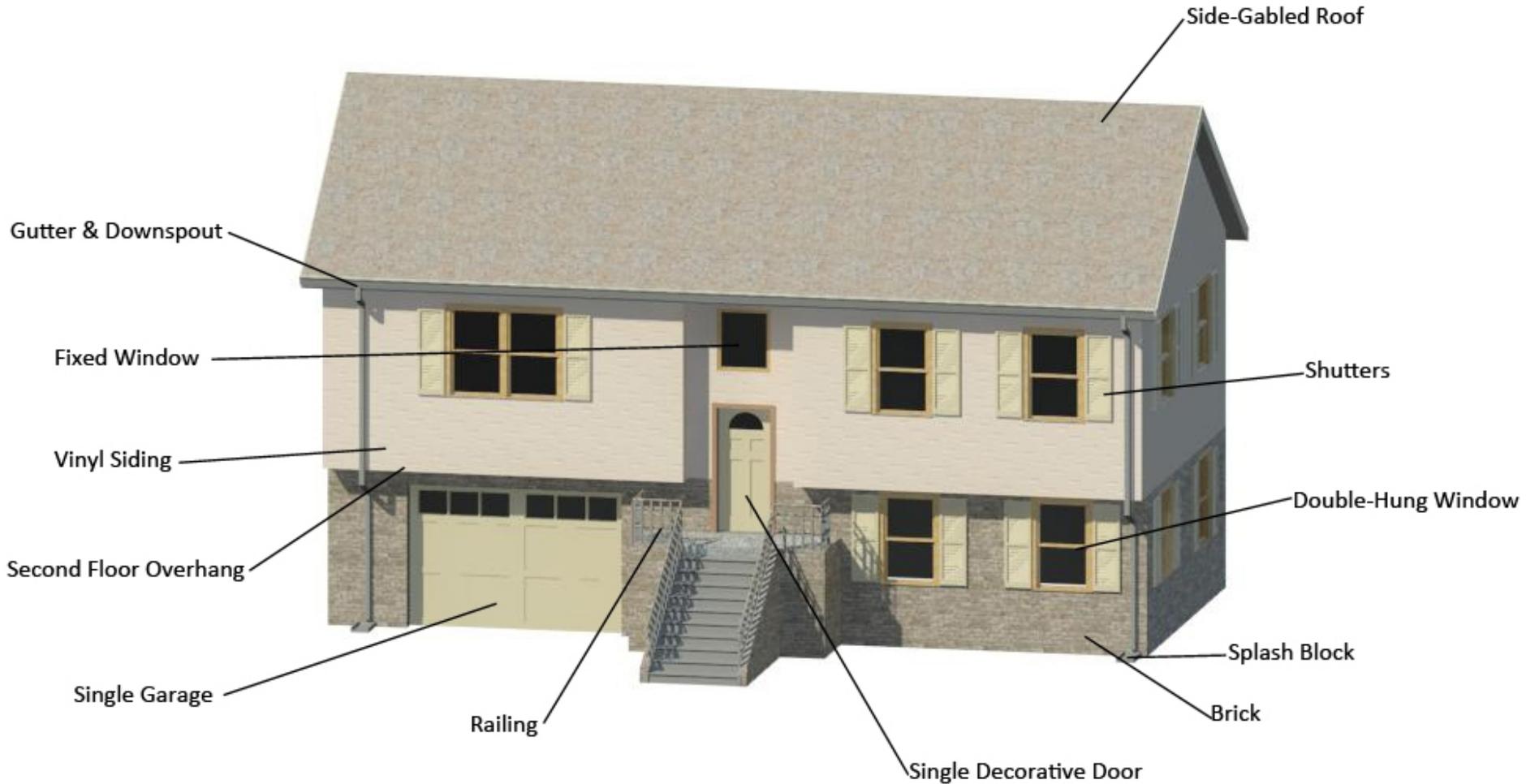
RAISED RANCH ALTERNATE DESIGN 1



Architectural Style: RAISED RANCH/ SPLIT FOYER

Raised Ranch Alternate Design 2: Illustration depicts two-story Raised Ranch with side-gabled main roof and uncovered front entrance.

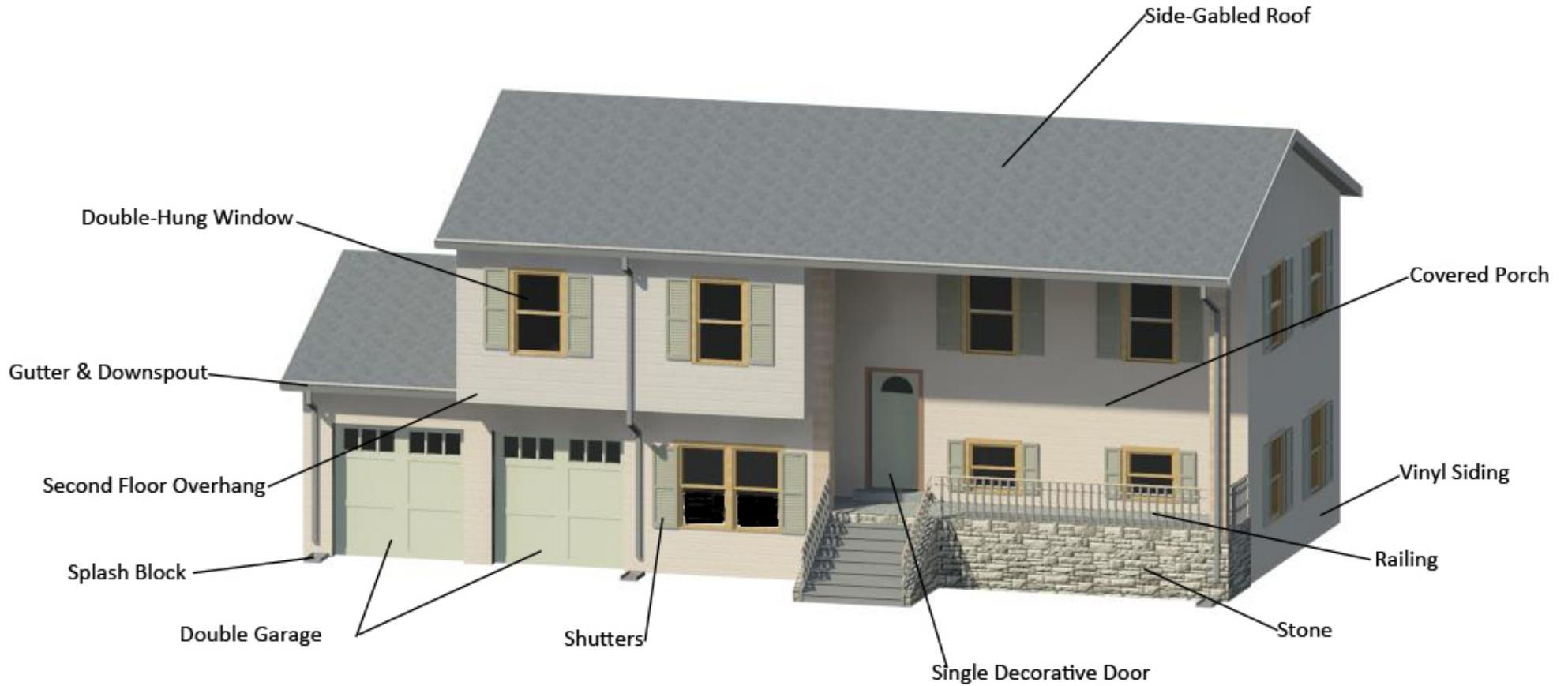
RAISED RANCH ALTERNATE DESIGN 2



Architectural Style: RAISED RANCH/ SPLIT FOYER

RAISED RANCH ALTERNATE DESIGN 3

Raised Ranch Alternate Design 3: Illustration depicts two-story Raised Ranch with side-gabled main and secondary roofs and recessed covered porch.



Architectural Style: RANCH STYLE



Images taken from Realtor®Mag Realtor.org

Identifying Features:

NOTE: Not all features may exist

<ul style="list-style-type: none"> • Single story • Deep-set eaves 	<ul style="list-style-type: none"> • Low pitched gable roof • Horizontal, rambling layout: long, narrow, and low to the ground
<ul style="list-style-type: none"> • Rectangular, L-shaped, or U-shaped design 	<ul style="list-style-type: none"> • Large windows: double-hung, sliding, and picture
<ul style="list-style-type: none"> • Sliding glass doors leading out to the patio 	<ul style="list-style-type: none"> • Attached garage
<ul style="list-style-type: none"> • Simple floor plans 	<ul style="list-style-type: none"> • Emphasis on openness and efficient use of space
<ul style="list-style-type: none"> • Built from natural materials: Oak floors, wood or brick exterior 	<ul style="list-style-type: none"> • Lack decorative detailing, aside from decorative shutters



Massing and Composition: RANCH STYLE

The Ranch style is characterized by a long, extended façade width. This style is loosely based on Spanish Colonial precedents. Three principal subtypes can be distinguished:

• Hipped roof	• Cross-gabled roof
• Side-gabled roof	

Further Details:

Asymmetrical one-story shapes with low-pitched roofs dominate. There is usually a moderate or wide eave overhang. Decorative iron or wooden porch supports and decorative shutters are the most common. Ribbon windows as well as picture windows are frequent in living areas.

Compatible Housing Styles:

• Split-Level Ranch	• Minimal Traditional
• Contemporary	• Shed

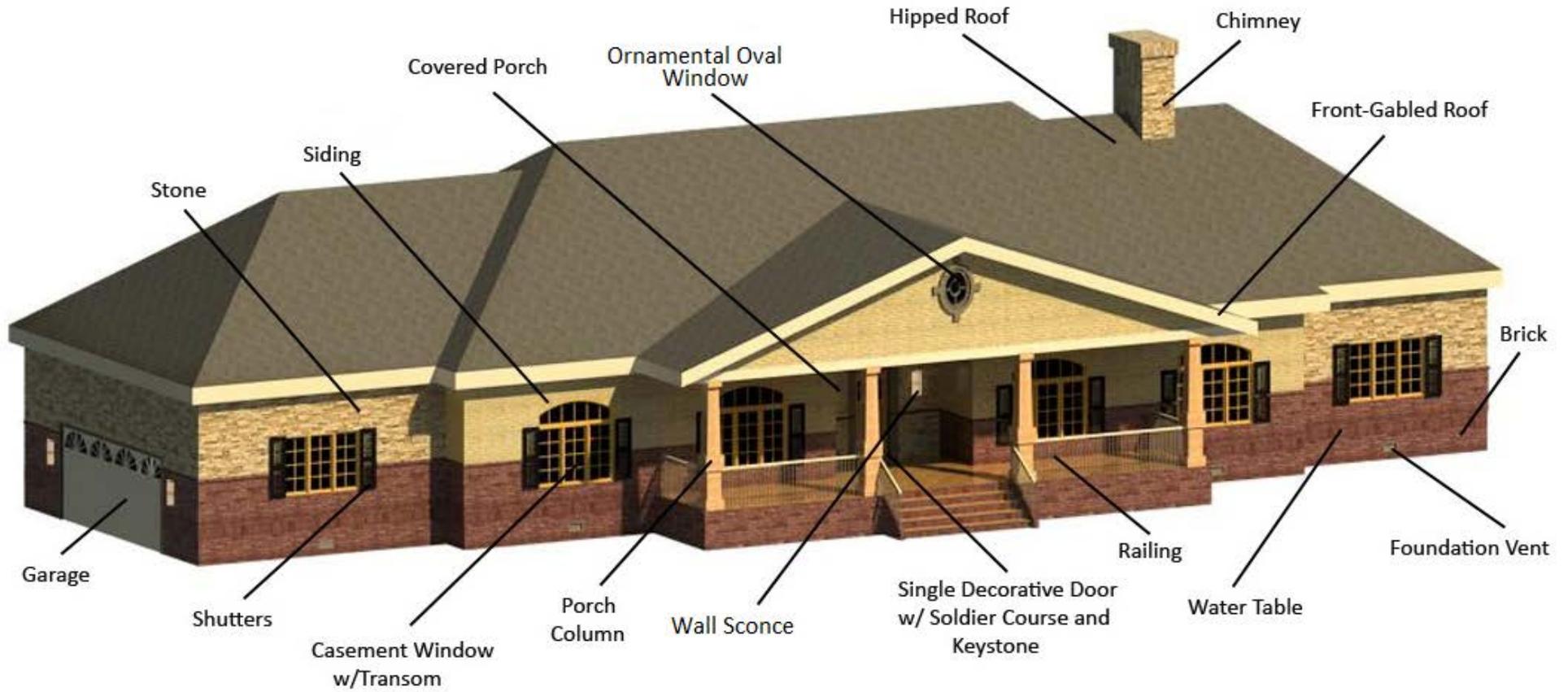
Alternate Designs:

On the following pages you will find illustrations of alternate designs of the Ranch. These however, do not depict all of the designs that can represent the Ranch style. A description of each design illustration is provided to describe alternate design features.

Architectural Style: RANCH STYLE

RANCH ALTERNATE DESIGN 1

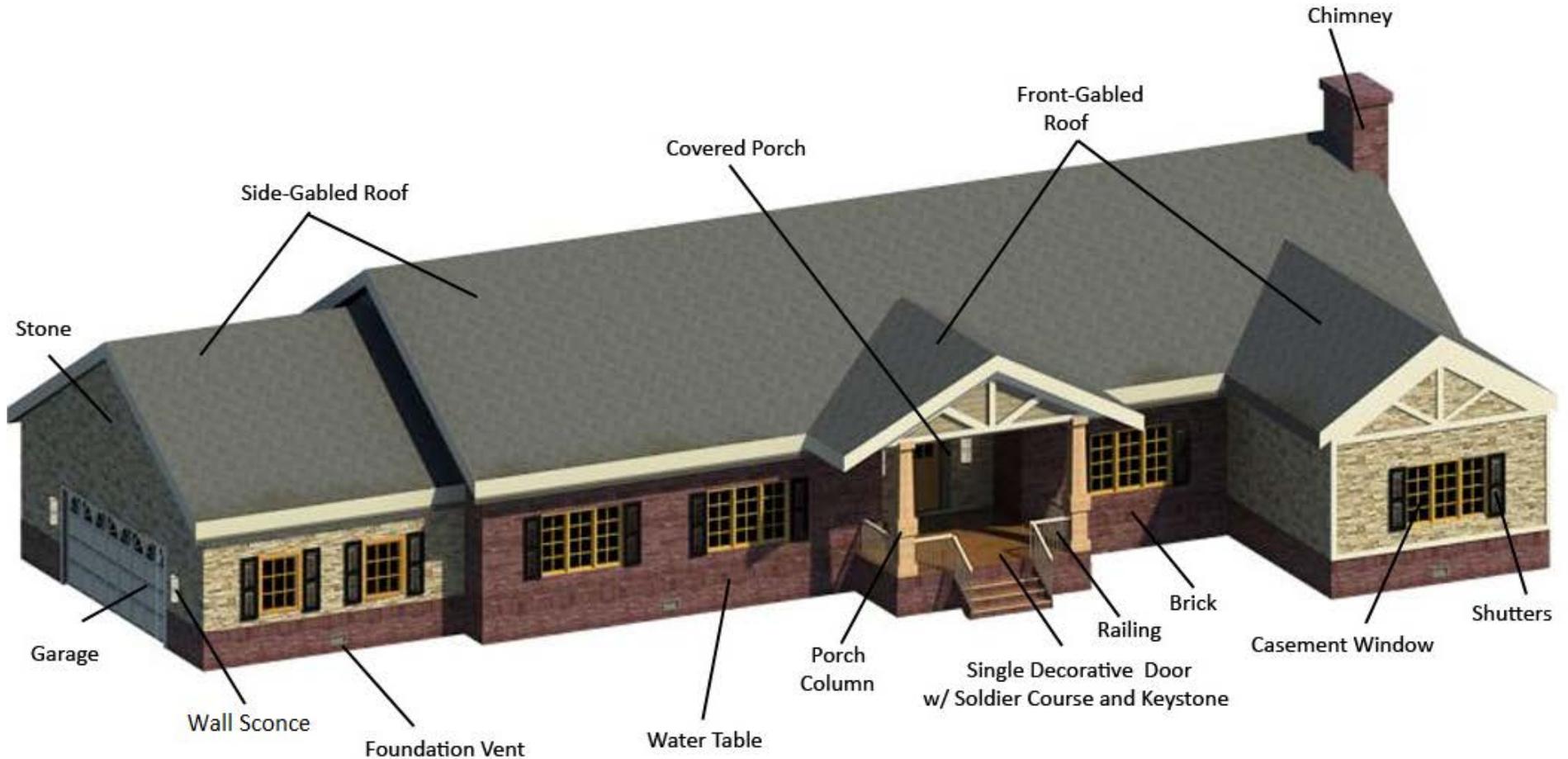
Ranch Alternate Design 1: Illustration depicts a Ranch with hipped main and secondary roofs and front-gabled roof over porch.



Architectural Style: RANCH STYLE

RANCH ALTERNATE DESIGN 2

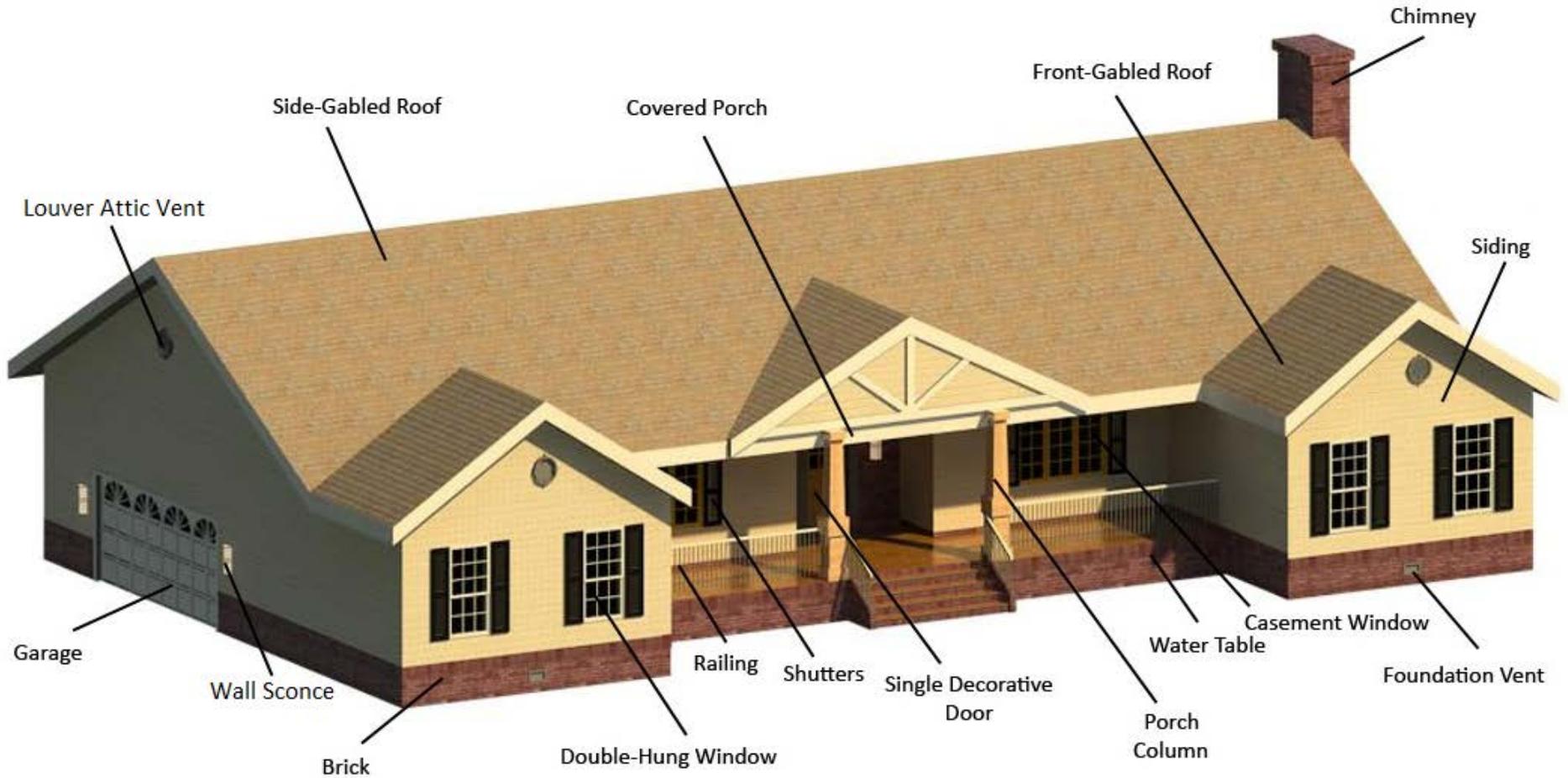
Ranch Alternate Design 2: Illustration depicts a Ranch with a side-gabled main and secondary roofs and front-gabled tertiary roof at "L" and front-gabled roof over porch.



Architectural Style: RANCH STYLE

RANCH ALTERNATE DESIGN 3

Ranch Alternate Design 3: Illustration depicts a Ranch with a side-gabled main roof, front-gabled secondary roofs and as element over recessed porch and



Architectural Style: SHED



Images taken from Realtor®Mag Realtor.org



Identifying Features:

NOTE: Not all features may exist

<ul style="list-style-type: none"> • Subset of the Modern Style 	<ul style="list-style-type: none"> • Favorite style of architects in the 1960s and 1970s
<ul style="list-style-type: none"> • Multiple roofs sloping in different directions 	<ul style="list-style-type: none"> • Wood shingle, board, or brick exterior cladding
<ul style="list-style-type: none"> • Small windows 	<ul style="list-style-type: none"> • No symmetry to the style
<ul style="list-style-type: none"> • Recessed and downplayed front doorways 	<ul style="list-style-type: none"> • Geometric shapes

Compatible Housing Styles:

<ul style="list-style-type: none"> • Contemporary 	<ul style="list-style-type: none"> • Ranch
<ul style="list-style-type: none"> • Minimal Traditional 	<ul style="list-style-type: none"> • Split-Level Ranch

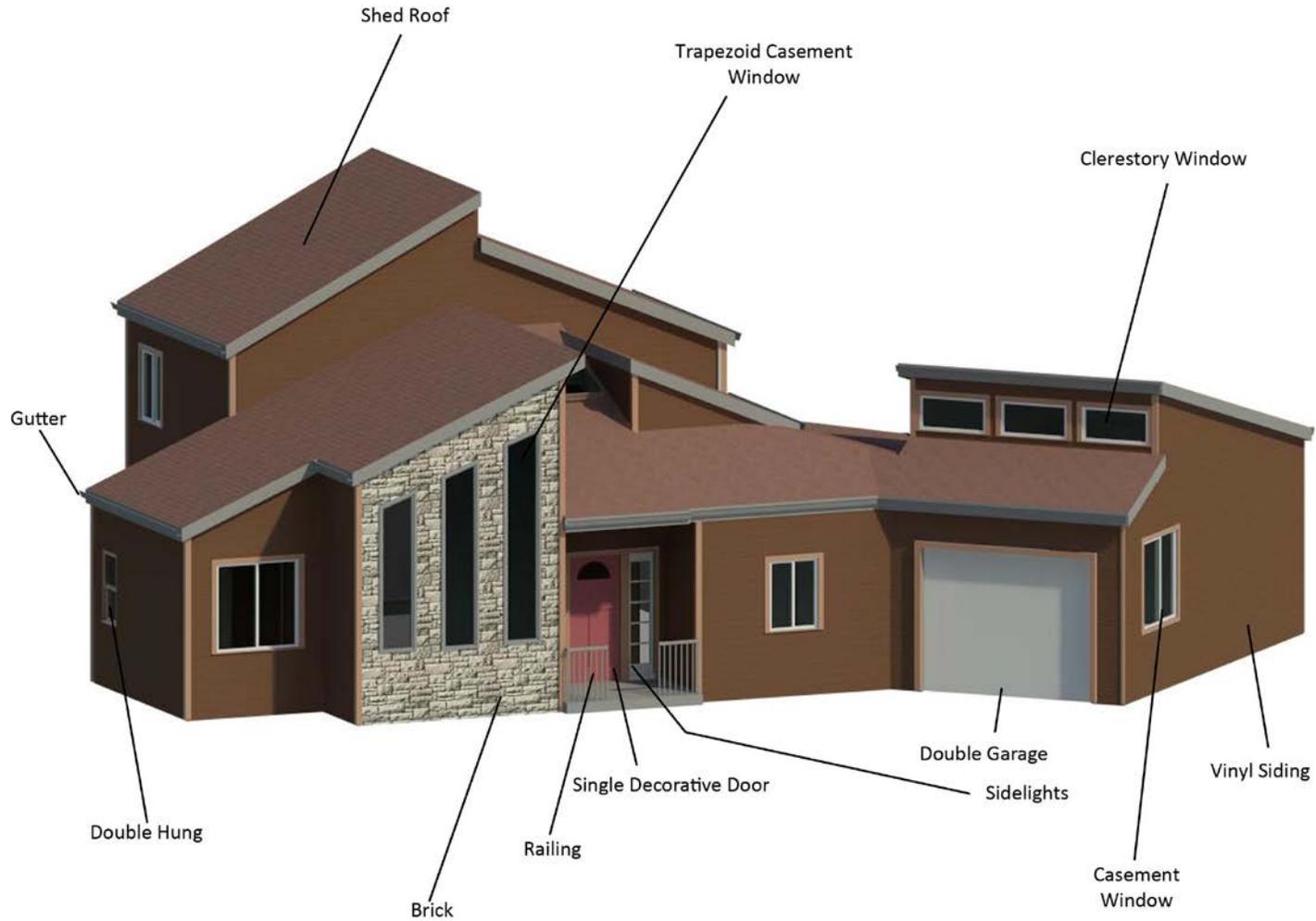
Alternate Designs:

On the following pages you will find illustrations of alternate designs of the Shed style. These however, do not depict all of the designs that can represent the Shed style. A description of each design illustration is provided to describe alternate design features.

Architectural Style: **SHED**

Shed Alternate Design 1: Illustration depicts a Shed with many intersecting shed roofs and covered stoop.

SHED ALTERNATE DESIGN 1



Architectural Style: SPLIT-LEVEL RANCH STYLE



Images taken from Realtor®Mag Realtor.org

Identifying Features:

NOTE: Not all features may exist

<ul style="list-style-type: none"> • Divided into several parts 	<ul style="list-style-type: none"> • One section is lowered and one section is raised
<ul style="list-style-type: none"> • The front door opens to a landing. Facing the door, one short flight of stairs leads down. A parallel flight of stairs leads up. 	<ul style="list-style-type: none"> • The front door opens into an entry wing or foyer apart from the main house. To one side, a short flight of stairs leads down. To the other side, a short flight of stairs leads up.
<ul style="list-style-type: none"> • The front door opens directly into the main living area. Elsewhere in the room, a short flight of stairs leads down and a parallel short flight of stairs leads up. 	<ul style="list-style-type: none"> • The front door opens on the lowest level, entering a garage or mudroom. A short flight of stairs leads up to the main living area. From there, another short flight of stairs leads up to the bedrooms.



Massing and Composition: **SPLIT-LEVEL RANCH STYLE**

This style is a multi-story modification of one-story Ranch house. It retained the horizontal lines, low-pitched roof, and overhanging eaves, but added a two-story unit connected by a one-story wing to make three levels. This layout made it possible to separate levels into living areas, noisy living and services areas, and sleeping areas. This style shows a wide variety of exterior wall cladding often mixed in a single house.

Compatible Housing Styles:

<ul style="list-style-type: none"> • Ranch 	<ul style="list-style-type: none"> • Raised Ranch
<ul style="list-style-type: none"> • Shed 	<ul style="list-style-type: none"> • Contemporary
<ul style="list-style-type: none"> • Minimal Traditional 	

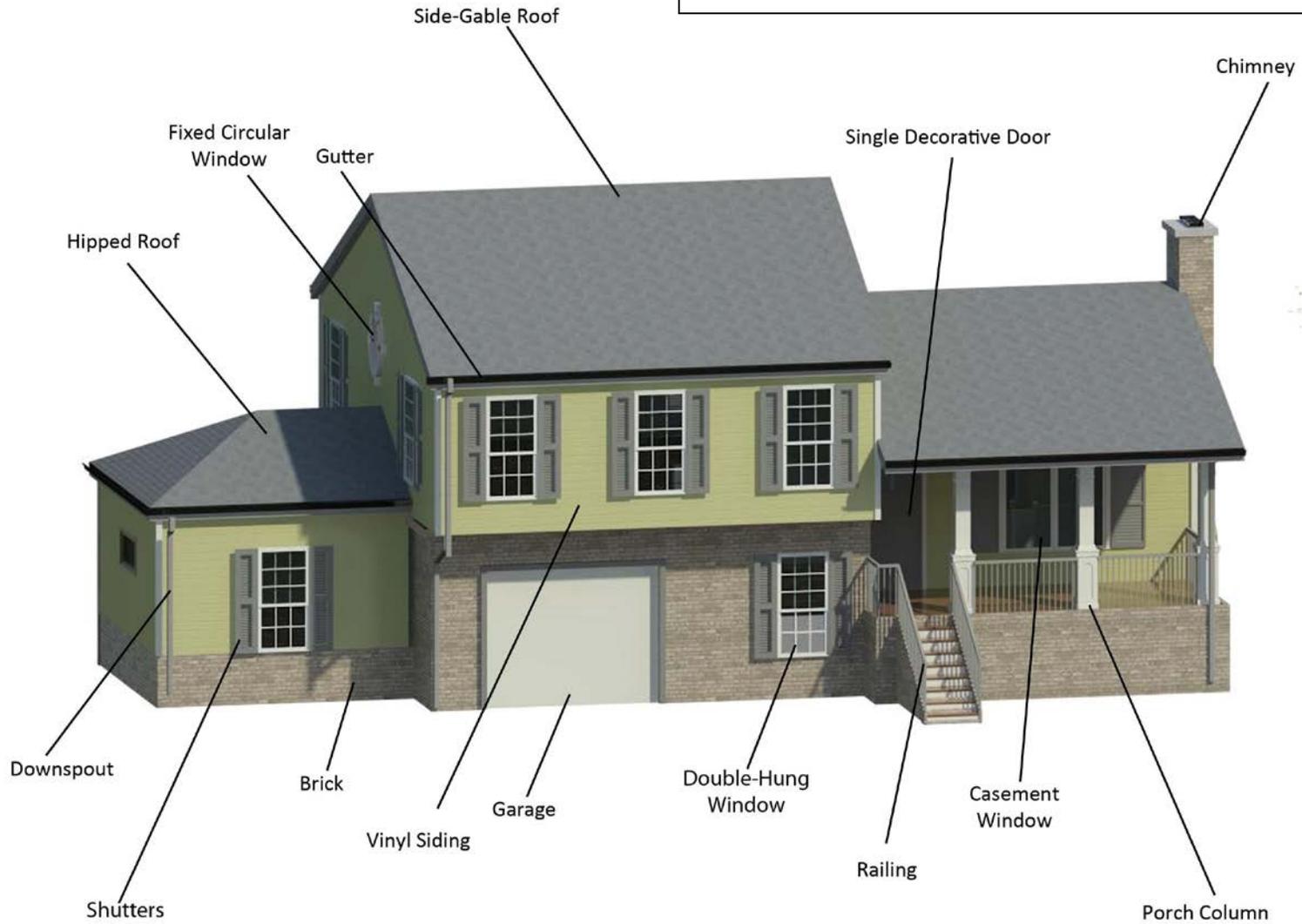
Alternate Designs:

On the following pages you will find illustrations of alternate designs of the Split-Level style. These however, do not depict all of the designs that can represent the Split-Level style. A description of each design illustration is provided to describe alternate design features.

Architectural Style: SPLIT-LEVEL RANCH

SPLIT-LEVEL RANCH ALTERNATE DESIGN 1

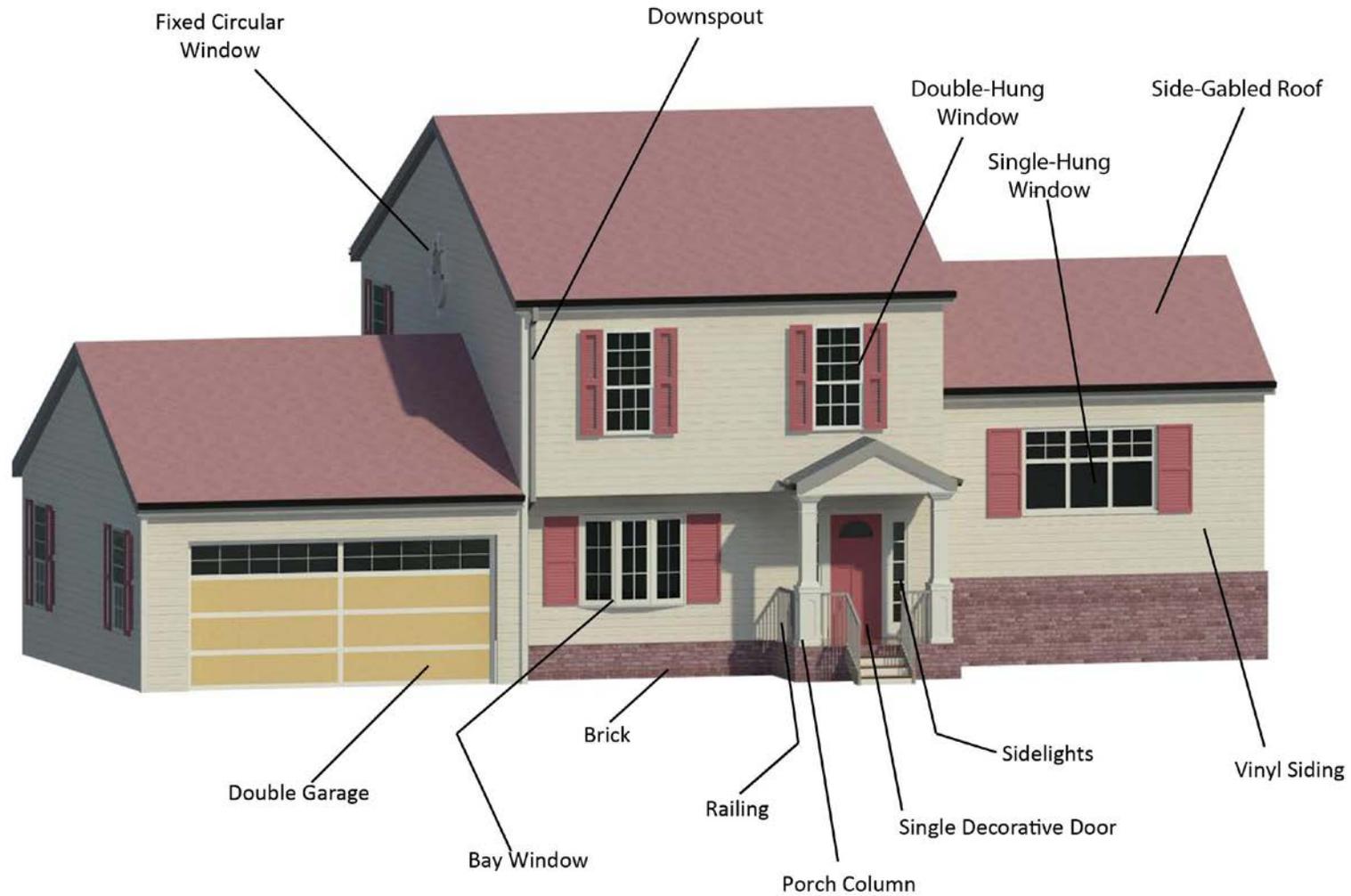
Split-Level Ranch Alternate Design 1: Illustration depicts multi-story Split-Level Ranch with side-gabled main and secondary roofs, a hipped tertiary roof and covered porch.



Architectural Style: **SPLIT-LEVEL RANCH**

SPLIT-LEVEL RANCH ALTERNATE DESIGN 2

Split-Level Ranch Alternate Design 2: Illustration depicts two-story Split-Level Ranch with side-gabled main, secondary, and tertiary roofs and front-gabled roof at porch.



CHAPTER 4: Home Improvement

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Smart Choices about Home Improvements

Following a regular schedule of home maintenance and repair is an essential part of being a home owner. Taking care of routine maintenance can help you steer clear of costly repairs in the long-term.

- Don't move; Improve!
 - Grow with your home. Modify your home to meet your changing needs over time.
 - Add character and value to your home through landscaping and decorative enhancements.

- Increase the energy efficiency of your home
 - Replace out-dated appliances with ones that are rated for energy efficiency
 - Upgrade to insulated doors and/or windows to better maintain the temperature of your house
 - Use environmentally sustainable building materials for repairs
 - Hire contractors who use environmentally sustainable construction practices
 - Install energy-efficient heating/cooling, electrical, and other home systems
 - Upgrade insulation in the attic and crawl spaces

- Visual appeal:
 - Simple upgrades can make a big difference in the look and beauty of your home. Consider the following enhancements to your property:
 - Flower beds or shrubs
 - Paving stone or brick walkways
 - Decorative shutters and/or window boxes
 - Front entrance elements such as light fixtures, railings, mail boxes etc.
 - Refresh color schemes or materials

- Here are a few questions to help you think about the role that good design plays in making successful home improvements
 - What is the size and scale of the house?
 - What is the style of the house?
 - How can you build off the existing design elements of the house?
 - What design elements will best enhance the outdoor spaces on the property?
 - What colors and materials will still look good together on the house 5+ years from now?
 - How will the planned colors and materials relate to neighboring homes?
 - How will the planned home improvements look from the street?
 - How will the planned home improvements relate to the character of the surrounding neighborhood?

Home Repair and Maintenance

Why is Home Maintenance So Important?

Reason #1: Money!

Regular home maintenance activities may seem like a pain, but staying on top of these responsibilities can save you headaches and major expenses down the road. Prolonged water infiltration is one of the most frequent culprits of costly home repairs and is easily preventable in many cases. Think about a strip of caulk that has come loose from around an exterior window. The crack beside the window can allow moisture to sneak under the siding, which will likely lead to mold and wood-rot. Rotten wood is also an inviting target for termites and other wood-damaging insects. If this problem is left unattended for months or years, it may result in the need to replace a large segment of beams and framing in that wall. And all it would have taken to fix the problem in the first place was a tube of caulk and a few minutes of your time.

If you allow too many of these small maintenance items to go unchecked, it can mean serious consequences for the value of your home. Purchasing a home may be the biggest investment you will ever make. In order to realize a profit on your investment, you have to take care of it. When it comes time to sell your home, an accumulation of delayed maintenance items will be obvious to potential buyers. If you have not kept up with your home maintenance check list, it may take much longer to sell your home than you expected.

Reason #2: Safety!

If there are smoke or carbon monoxide detectors in your home that don't function properly or need a battery replacement, they will not protect your household in the case of an emergency. How about that section of the kitchen floor that creaks? There may be structural degradation underneath that makes the floor unsafe to walk on. Any creaks, squeaks, cracks, or softness in the floor system should be inspected which may detect potential or existing moisture, termite or structural damage.

Inspections may reveal environmental hazards that you were not even aware of, such as radon gas in the basement or water supply, friable asbestos materials (both of which can cause lung cancer), and peeling or disturbed lead paint (a risk to children and pregnant women). Did you know that certain types of mold and mildew can be hazardous to your health? If there are in-ground heating oil tanks on your property, it is possible they may be contaminating the ground water.

Performing routine maintenance on your home and hiring a professional to conduct an annual inspection should allow you to identify potential safety hazards and correct them. An entire industry of environmental remediation contractors has developed to help home owners resolve these types of problems.

Reason #3: Neighborhood Quality!

Properties that are not well maintained detract from the vitality of the entire neighborhood. When each resident makes a genuine effort

to maintain his/her home it increases the pride people feel in their neighborhood, the sense of safety people feel in the neighborhood, and the level of trust and confidence residents place in their neighbors. Code Enforcement enforces the city's property maintenance ordinances citywide. For more information visit <http://www.vbgov.com/government/departments/housing-neighborhood-preservation/homeowners/pages/property-maintenance.aspx>.

Home Maintenance, Repairs and Improvements – What's the Difference?

First, it is important to understand the relationship between home maintenance, repairs and improvements. Periodic maintenance relates to inspections, adjustments, cleanings, or replacements that should be performed on a regular basis to ensure proper functioning of all the systems in a house. When the right amount of home maintenance is performed on a regular basis, it should minimize the likelihood that a home owner will have to make more substantial repairs to the home.

Examples of home maintenance activities include: annual testing and adjustment of alarm systems, and central heating or cooling systems; replacement of water treatment components or air-handling filters; purging of heating radiators and water tanks; refilling dry floor-drain traps with water; cleaning out rain gutters, downspouts and drains; touching up worn house paint and weather seals; caulking cracks; patching drywall; power washing the siding; and cleaning accumulated creosote out of chimney flues.

Home repairs can be thought of as more substantial types of home maintenance. Home repair can relate to problems that may arise either when home maintenance has not been performed on a regular basis; when components in the home wear out after their useful life and need to be replaced, periodically; when a component needs to be restored to a useful condition (such as, replacing leaky faucets, or cleaning out plumbing traps); and also when home components simply break unexpectedly.

The first step of home repair is to notice or identify a problem that needs attention. The second step is to diagnose the problem. That is – to determine what needs to be done in order to fix the problem. The final step is taking action to repair and resolve the problem.

When a home owner is confronted with a major and very expensive repair, sometimes it is more cost-effective to invest in a full-scale improvement. Obsolete home systems are a good example. The cost of continually repairing an air conditioner that is more than 10-15 years old, plus the electricity costs for running an inefficient machine, might be greater than the cost of upgrading to a new air conditioning system.

Stay aware of signs that you may be overloading or otherwise misusing home systems. For example, if you find that you are continually having to replace fuses or flip the switch on circuit breakers in your home, it could indicate you have overloaded one or more electrical receptacles or that it is time to improve (upgrade and replace) the electrical system in your home.

Know Your Limits

General home maintenance as well as many types of repairs can be easily accomplished on your own. Often times a do-it-yourself (DIY) project like painting, decorating, or landscaping can be both fun and rewarding. However it is important to be familiar with your skill level and to understand which types of repair or improvement projects will require the assistance of a property manager, carpenter, plumber, electrician, contractor/builder, or other professionals.

Some repairs require an urgent response time, such as a broken water pipe; broken doors, latches, or windows; or a leaky roof or water tank. Most often, urgent repairs justify hiring a professional to take care of the job.

In determining whether to call in a professional for your project it may help to consider the following questions:

- Is the project complicated? Does the project require a variety of skills to complete it?
- Is the project likely to be time-consuming?
- Are there potential risks or hazards involved in the project? Will the project require the use of any materials that may irritate your lungs or could be considered toxic or hazardous? (Example: Cleaning accumulated creosote out of chimney flue)
- Does the project require the use of specialized tools that you may not currently own?
- Does the project require precision, experience or specialized knowledge (tiling, plumbing, or electrical wiring, for example)?
- Is a building permit required?

Make Home Maintenance Easy on Yourself

Develop a Budget! When looking to purchase a home, and setting a purchase price limit, many people do not factor in annual maintenance costs in the same way they would factor in mortgage insurance or property taxes. As a rule of thumb, you should plan to set aside between 1% to 3% of the initial value of your home each year for home maintenance costs. Estimating these costs *before* you purchase will help ensure that you don't enter into a mortgage that is more substantial than you can afford.

If you are already a home owner, start a home maintenance savings account or cash reserve. Set a goal amount that you will deposit in your cash reserve each month, based on your personal budget and the number and type of repairs you know your home will require in the future. Having a cash reserve that you will *only* use for home maintenance will give you greater flexibility to make both emergency and scheduled repairs as soon as they are needed.

Certain components of a home have a known, limited useful lifetime and, at the same time, may be costly to replace or upgrade. A homeowner should forecast and budget for replacement of these items months or years in advance. Examples of these items include: refreshing the stain on outdoor wood or metal; repainting and waterproofing masonry; cleaning out septic systems; replacing sacrificial electrodes in water heaters or replacing the water heater itself; and replacing the roof, windows, or siding.

Also get in the habit of setting budget limits for individual repair or improvement projects. Whether you plan to do the project yourself (DIY) or hire a contractor – set a budget for the project and stick to it.

Get Organized! The most important first step to home repair and maintenance is to get organized. Develop a checklist of each of the tasks you need to complete (weekly, monthly, yearly) in order to take proper care of your home. Make a list of all the light bulbs, air filters or other items that need to be replaced regularly. Include the model number/type or size next to the item on the checklist. This should make shopping for replacement parts easier.

Home Maintenance Checklist

Each home is different. You should develop a checklist that makes sense for your particular home. But there are a number of maintenance items, common to almost all homes, that should be completed on a monthly, semi-annual or annual basis. Below is a general home maintenance checklist to get you started. Activities that are advisable to carry out specifically in the spring and fall have been listed separately.

Complete once each month

- Inspect and clean or replace all filters
 - Heating / air conditioning
 - Air exchange systems
 - Stove hood
 - Dryer

- Flush toilets and run water through sinks, in bathrooms that are not used on a regular basis
- Clean and secure gutters and downspouts

Complete once per season / 4 times per year

- Take notice of drainage conditions in your yard. Ensure that there is no water draining toward your foundation from any part of your yard. If puddles remain for longer than 24 hours, consider grading the affected areas your property to avoid standing water.
- Inspect, lubricate and clean all exterior vents. Make sure that each vent has an operable damper to prevent back flow of outside air and to keep pests from entering your home.

Complete once every six months / 2 times per year

- Inspect the following caulked areas and repair if necessary:
 - All areas that get moist/wet in the kitchen and bathroom
 - Window and door seals
 - Around all hoses, faucets, vents, fireplaces and chimney vents
 - Vinyl, aluminum or wood siding
 - Exterior stucco or mortar cracks
 - Interior sheetrock cracks that may form from natural settling

- Clean out all accumulated debris from gutters and make repairs if necessary. Make sure splash deflectors are installed at the base of the downspout so gutters empty away from the foundation.
- Inspect sump pump (if you have one), clean the pump screen, and remove any soil buildup from the well
- Change the direction of ceiling fans
- Inspect fire extinguishers or have them tested
- Vacuum refrigerator coils
- Inspect home for insect activity (termites, ants, wasps, etc.)

Complete once per year

- Inspect, adjust and lubricate your garage doors, rails and lock system
- Clean faucet aerators and inspect plumbing for leaks
- Inspect hoses on washing machine, dishwasher and icemaker for leaks
- Clean and sharpen garbage disposal by placing ice cubes and a foaming cleanser into the disposal
- Replace carbon monoxide and smoke detector batteries. Dust and test detectors.
- Schedule septic tank inspection (if your home has one)
- Inspect basement/crawl space for moisture accumulation, leaks or mold issues

Complete in the spring

- Inspect and service your air conditioning system
- Clean and re-seal deck if needed
- Inspect exterior paint and touch up as needed
- Service your lawn mower and yard equipment
- Remove storm windows, and install screens
- Repair or replace damaged window screens
- Inspect roof for damage
- Inspect attic for leaks

Complete in the fall

- Inspect and service central heating system
- Insulate exposed pipes as needed
- Drain hot water heater and remove any sediment at the bottom, then refill
- Drain any outside faucets so pipes will not freeze and burst in the winter
- Inspect and test hot water heater safety valve
- Schedule furnace inspection
- Order a chimney inspection and cleaning
- Remove screens and install storm windows
- Remove window air-conditioners, or put weatherproof covers on them
- Inspect roof for damage
- Cover or store outdoor furniture

Before You Renovate

Starting a new home improvement project can be very exciting for homeowners. Whether you are preparing for your first project or are a veteran to the process there are several steps to keep in mind as you begin to plan. From landscaping to home additions the following tips will help your next project run as smoothly as possible.

1) Familiarize yourself with your property lines and applicable zoning and building regulations. The zoning and size of your lot has a major impact on the kind of projects that can be completed on your property. Factors such as the size of your completed project or the choice to build a detached structure, for example, must comply with applicable zoning codes and ordinances in order for your project to be allowable. Obtain a copy of the land survey that was taken when you purchased the home. Visit the Zoning Administration web page (<http://www.vbgov.com/government/departments/planning/zoning/Pages/default.aspx>) to find out more about zoning regulations.

2) Get to know your neighborhood guidelines. Many, but not all, residential communities have their own set of design guidelines, which aim to maintain architectural integrity and unity. Such guidelines often restrict the selection of residential style that can be used, what types of materials are allowable, the total size an improvement project can be, as well as other factors. Some projects may even require approval from your local homeowner's association (HOA). Consult your HOA handbook to make sure. Study construction trends in your neighborhood (style, color, size, etc.) and develop your project along similar lines.

3) Put it on paper. Whether they are floor plans, sketches, or photographs of similar finished projects, having visual references for your idea will help you realize your vision. Oftentimes, it is beneficial to consult with a professional or someone who has experience managing the type of project you are planning. These individuals can provide valuable feedback and suggestions.

4) Apply for and secure a permit from the city. The city of Virginia Beach requires building permits for a variety of construction and improvement projects including, but not limited to, detached structures, additions, roof replacement, and pool installations. Visit the Department of Planning web page ([http://www.vbgov.com/government/departments/planning/permits-inspections/pages/building-\(residential\).aspx](http://www.vbgov.com/government/departments/planning/permits-inspections/pages/building-(residential).aspx)) to find out more about the permitting process.

5) Prepare your site. Be sure to take all necessary safety precautions before you begin your project. If your project involves digging or building near overhead lines, contact the Virginia Utility Protection Service (toll free, 1-800-552-7001) or visit their website (<http://va811.com/about-us/>) to determine if it is safe to begin your project. If you are undertaking a project that involves demolition, hire a hazardous materials expert to ensure that your home does not contain asbestos, lead-based paint or other hazardous materials and to determine what types of permits may be required. If your project involves major structural features like a foundation, framing or masonry, hire a structural engineer to conduct an inspection of your property and/or assess your plans. Using this approach will ensure that you are adequately prepared and taking the necessary precautions.

6) Go green! Plan to incorporate green building techniques and eco-friendly materials into your home improvement project, to reduce the impact on the environment.

How to Select a Contractor

- Hire only licensed contractors.
- Check contractor's license at www.dpor.state.va.us or (804) 367-8511.
- Get three references, review past work that is similar to the work you will have done.
- Get at least three bids.
- Get a writing contract with cost and don't sign anything until you completely understand the terms.
- Pay 30% down
- Require the contractor to pull any required permits in their name (should be the same as is written in your contract).
- Don't let payments get ahead of work. Keep record of payments.
- Don't make final payment until finish inspection is approved and you're satisfied with the job.
- Don't pay cash.
- Keep a job file of all papers relating to your project.

Before you choose a remodeler, do your homework! To find out more information visit the [Tidewater Builders Association](http://www.tidewaterbuilders.com) website.

Home Renovation Guide

The following information introduces the reader to an assortment of basic home renovations that can be undertaken to improve the safety, durability, and appearance of a home. The images included will help to visualize the suggested renovations and familiarize you with the many components of a home.

The renovations included in the guide are listed in a specific order that should help prevent common renovation conflicts. This guide advises you to complete exterior projects before interior projects. However, every home renovation is unique. The homeowner should complete projects in the order that best fits his/her situation, goals and needs.

Before...



... After

Home Renovation and Remodeling Guide Contents

1. Design and Planning
2. Demolition
3. Prevention of Water Infiltration
4. Structural Carpentry
5. Siding and Gutters
6. HVAC Ductwork, Electrical, and Plumbing
7. Insulation
8. Interior Walls, and Ceilings
9. Flooring
10. Windows
11. Fine Carpentry
12. Interior Painting, Wall Paper, and Wall Finishes
13. Additions



1. Design and Planning

- Research your renovation ideas. Look at magazines, books, guides, and home renovation stores/galleries (www.thisoldhouse.com is a great website for generating ideas).
- Talk to acquaintances (personal or professional), who may have completed similar renovations, to learn from their experience.
- Commit your design ideas to paper / draw up a complete project plan.
- Develop a budget and cost estimates for your project.
- Ensure you have gathered adequate funding (through savings, grants, or other sources) for the renovation project before you begin.
- Create two lists – one list of the project(s) you will complete, yourself; and one list of the project(s) you will hire one or more professionals to complete.
- Solicit proposals from three contractors.
- Select the contractors and subcontractors needed for the project(s).
- Research and apply for the proper [permits](#). If you've hired a contractor, the contractor should pull the permits for the project.
- If your project involves digging or building near overhead lines, ensure you have contacted the Virginia Utility Protection Service (toll free, 1-800-552-7001) before beginning the project.

2. Demolition

- Check with the City Planning and Community Development Department, Permits and Inspections Division 757-385-4211 to see if permits are required for demolition.
- Rent a large container for waste. It is better to over-estimate the size of the container your project will require.
- Carefully demolish the areas of the home that will be renovated.
- Always wear the appropriate protective gear to prevent inhalation of dust or other particles.
- If you anticipate that your project may produce excesses of dust or noise – be courteous and give your neighbors fair warning.
- Before you begin any demolition, order an inspection to be done on the area of your home that you plan to demolish. An inspector should be able to determine if that area of your home contains [asbestos](#), [lead-based paint](#) (for homes constructed prior to 1978), other hazardous materials, and/or structural components that are necessary to preserve.

****Do not attempt a project on your own if hazardous materials are involved – call a certified professional!****



Large Waste Container Example



Home Demolition Example

3. Prevention of Water Infiltration

Roof, Foundation, Siding, and Windows

The following basic structural repairs are necessary to keep your home safe, stable and well-sealed from any water infiltration. These types of repairs should be considered urgent and should be completed first before you focus on other types of renovations.

- If your foundation is not completely secure, this issue should be remedied first and foremost. You are advised to consult with a structural engineer who can appraise any damage and recommend a repair strategy.
- If any walls, joists or carrying beams are weakened, warped or rotting – repair them as soon as possible.
- Water leakage through lose roofing tiles or shingles can lead to a series of costly repairs. Replace loose or damaged roofing tiles or shingles as soon as possible. The entire roof on the home must be replaced periodically. Slate, copper and clay/concrete tile roofs can last 50+ years; wood shake roofs last 20 - 30 years; a fiber cement shingle roof will last about 25 years; and an asphalt shingle roof will last 15 - 20 years.
- Replace any siding that is so lose or damaged as to allow water infiltration.
- Replace any windows that may have rotted frames, warping, broken glass and other types of serious damage, as well as windows that may not seal completely. (Windows or siding that need repair, but are not allowing water to infiltrate, are less urgent and can be addressed later in the renovation process.)



Water Damaged Window Example



Damaged Roof Example

4. Structural Carpentry

- Professional carpenters should be hired for projects such as:
 - Moving walls
 - Constructing new walls
 - Enlarging window openings or constructing new window openings
 - Adding beams to support greater loads
 - Adding and removing doors
- Examine existing carpentry for termite damage; if damage is present, call a local pest control professional for extermination service.



Constructing New Walls Example



Structural Wall Framing Example

5. Siding, and Gutters

- If not already present, install siding and gutters to the exterior of the home. Or replace siding and gutters if damaged or excessively worn.
- Gutters are recommended (not required) to move water/moisture away from structure.



Vinyl Siding Example



Gutter and Downspout Examples



Shake Siding Example

6. HVAC Ductwork, Electrical, and Plumbing

- While the walls and ceilings are open examine the following systems:
 - Heating and air conditioning system(s)
 - Electrical system(s)
 - Plumbing system(s)
 - Insulation (on exterior walls)
- Repair/replace excessively worn, damaged, outdated, or unsafe system(s).



Electrical System Example



HVAC System Example



Plumbing System Example

7. Insulation

- Install [insulation](#) in all walls and attic spaces.
- [Air seal](#) throughout
- Caulking



Caulking Example



Attic Insulation Example



Wall Insulation Example

8. Interior Walls, and Ceilings

- Install interior wall finish to cover wall and ceilings



Plastering Interior Walls Example



Drywall Example



Drywall Example #2

9. Flooring

- If necessary, remove existing flooring.
- Examine the sub-floor and/or floor joists for damage. If damaged, replace flooring sections or entire floor (depending on extent of the damage).
- If you find [evidence of termites](#), or other type of wood destroying insect call a [professional exterminator](#) to treat the affected area of your home.
- If you find water or moisture damage, find the source immediately and eliminate it.
- Install new flooring within the home.
- To prevent significant damage to flooring surface from other repair work, install new flooring as one of the last phases of the renovation process.



Laminate Flooring Example



Tile Flooring Example



Carpet Flooring Example

10. Windows

- If necessary, replace existing windows



Window Selection Example



Window Replacement Example

11. Finish Carpentry

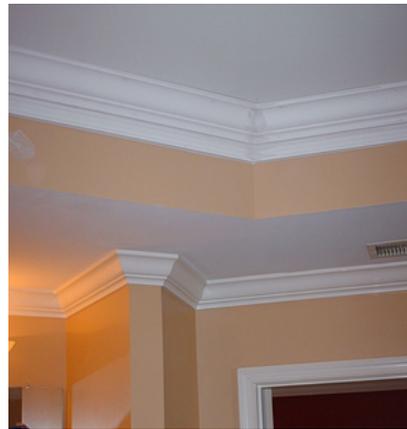
- Carpentry that does not involve major or weight-bearing structures of the home can be a good candidate for do-it-yourself projects. Examples of do-it-yourself renovations include, but are not limited to:
 - Baseboards
 - Moldings
 - Trim around windows and doors
 - Built-in elements (bookcases, nooks, window seats, etc.)



Door Trim Example



Baseboard Example



Crown Molding Example



Built-in Book Case Example

12. Interior Painting, Wall Paper, Wall Finishes

- Paint interior walls
- Hang wall paper
- Paint moldings and trim
- Stain and seal moldings and trim



Wall Paper Example



Interior Wall Painting Example



Painted Baseboard and Stained Toe Molding Example

13. Additions

- For more information about home additions see Chapter 3 of the PREmier Homes Pattern Book.



Addition with Framing Example



Addition with Building Wrap Example



Completed Addition with Deck Example

Upgrades by Cost

The following are some upgrades that homeowners can make to improve the value and/or visual appeal of their homes. The list is organized into cost categories (minimal, moderate, high) to help you begin to identify which types of improvements align with your budget. Following this section are illustrations of how upgrades from each cost category can be used to improve a variety of housing styles.



Before...



...After



Minimal Cost

Some cosmetic home upgrades can produce a dramatic improvement in the appearance your home with only a minimal investment. An advantage of the upgrades in this list is that they can be accomplished by almost anyone, without the assistance of paid contractors/remodelers.

- Paint
 - Trim
 - Shutters
 - Windows
 - Doors
 - Siding
- Add a new mailbox
- Add vegetation and landscaping
 - Window boxes
 - Foundation bushes
 - Small trees in front yard

Moderate Cost

The upgrades listed below represent more substantial improvements to both cosmetic and functional elements of the home. These upgrades may require some degree of professional assistance, but can be completed on a moderate budget.

- Replace
 - Doors
 - Windows
 - Shutters
 - Siding
- Add new fencing and gates
 - Wooden pickets
 - Vinyl
 - Metal
- Add paths or walkways
 - Leading from the driveway to the front door
 - From the street to the front door

There is a wide range of materials that can be used to create aesthetically pleasing paths or walkways from one point on the property to another:

- Concrete sidewalks
- Stepping stones
- Paver Bricks
- Cobblestone

Higher Cost

For those homeowners who are prepared to make a larger investment in their property, this list provides some suggestions to customize the home to meet his/her changing functional or aesthetic needs. While the upgrades below will certainly add character and beauty to the home, some of these upgrades are not primarily cosmetic in nature and will instead require significant structural modifications. For each of the listed upgrades, the homeowner will most likely be required to hire a professional.

- Add:
 - Sunspace
 - Screened-in porch
 - Attached garage
 - Driveway
 - Deck or patio
 - Dormers
 - Rooms
 - Additional floor level

- Replace:
 - Roofing materials
 - Window air conditioning units with central HVAC

- Convert:
 - Attached garage into a habitable space

Cape Cod Upgrades



Minimal Cost - \$



Moderate Cost - \$\$



Higher Cost- \$\$\$

By Cost:

\$ - Door and shutters are painted. Small trees are planted in front yard.

\$\$ - Front-Gabled roof element installed over entrance. Roofing material changed.
A new fence is installed at the perimeter of the property.

\$\$\$ - Front-gabled dormers and front-gabled roof over stoop added. Siding is replaced. Additional landscape planting is installed.

Colonial Revival Upgrades

Minimal Cost - \$



Moderate Cost - \$\$



Higher Cost- \$\$\$



By Cost:

\$ - Trees and shrubbery added around the house.

\$\$ - Front-gabled dormers are added onto the home. A new fence is installed at the perimeter of the property. Additional landscape planting is installed.

\$\$\$ - Wrap-around porch with railing is built onto home. Siding is replaced. Additional shrubbery added around the driveway.

Craftsman Upgrades.



Minimal Cost- \$

By Cost:

\$ - Small trees and shrubbery planted in front of the house. Railing is added to porch. Door and shutters are replaced. Flower box added under second story window.

\$\$ - A new garage is added to the side of the home. A new driveway is installed leading to the garage with a new sidewalk from driveway to front door. Windows are replaced. A new fence is installed at the perimeter of the property.

\$\$\$ - Front-gabled dormer is added onto the home. Siding is replaced. Roofing material is changed. Additional landscape planting is installed.



Moderate Cost- \$\$



Higher Cost- \$\$\$

Dutch Colonial Upgrades



Minimal Cost - \$



Moderate Cost - \$\$



Higher Cost- \$\$\$

By Cost:

\$ - Small trees and shrubbery planted in front of the house. Door and shutters are replaced.

\$\$ - A new garage is added to the side of the home. A new driveway is installed leading to the garage with a new sidewalk from driveway to front door. A new fence is installed at the perimeter of the property. Additional landscape planting is installed.

\$\$\$ - Front-gabled dormer is added onto the home. Roofing material is changed. Additional shrubbery added around the driveway.

Georgian Colonial Upgrades



Minimal Cost - \$



Moderate Cost - \$\$



Higher Cost- \$\$\$

By Cost:

\$ - Small shrubbery planted in front of the house. Small porch roof with decorative brackets and shutters added onto the home.

\$\$ - Columns and front-gabled roof added to porch. A new fence is installed at the perimeter of the property.

\$\$\$ - Roofing material is changed. A paved walkway from driveway to front door added. Additional landscape planting is installed.

Neo-Eclectic Upgrades

Minimal Cost - \$



Moderate Cost - \$\$



Higher Cost- \$\$\$



By Cost:

\$ - Stone is added to the facade. Small shrubbery planted in front of the house.

\$\$ - Wall elements are added. A new fence is installed at the perimeter of the property. Additional landscape planting is installed.

\$\$\$ - Front and garage doors are replaced. Roof materials is changed. Additional landscape planting is installed.

Raised Ranch Upgrades



Minimal Cost - \$



Moderate Cost - \$\$



Higher Cost- \$\$\$



By Cost:

\$ - Door, siding and shutters are replaced. Small trees and shrubbery planted in front of the house.

\$\$ - Front-gabled roof is added to porch. A new fence is installed at the perimeter of the property.

\$\$\$ - A new garage is added to the side of the home. A new driveway is installed leading to the garage. Roofing materials changed. Roofing material is changed. Additional landscape planting is installed.

Ranch Upgrades

Minimal Cost - \$



Moderate Cost - \$\$



Higher Cost- \$\$\$



By Cost:

\$ - Room addition at front creates L-shaped Ranch. Small shrubbery planted in front of the house.

\$\$ - Decorative wall elements are added. A new fence is installed at the perimeter of the property. Additional landscape planting is installed.

\$\$\$ - A finished room over garage "FROG" with a dormer is added. An accessibility ramp is added. Roofing material is changed. Additional landscape planting is installed.

Shed Upgrades

Minimal Cost - \$



Moderate Cost - \$\$



Higher Cost- \$\$\$



By Cost:

\$ - Small trees and shrubbery planted around the house.

\$\$ - Custom built windows added to the front façade. A new fence is installed at the perimeter of the property. Additional landscape planting is installed.

\$\$\$ - Stone is added to front façade face. Siding and roofing materials are changed. Additional landscaping added around the property.

Split-Level Upgrades

Minimal Cost - \$



Moderate Cost - \$\$



Higher Cost- \$\$\$



By Cost:

\$ - Small trees and shrubbery planted around the house.

\$\$ - Dormers are added to the home. A new fence is installed at the perimeter of the property.

\$\$\$ - A fireplace and chimney is added to the home. A new room addition with side-gabled roof is added to right side of house. Siding is changed. Additional landscape planting is installed.

Detached Structures

Commonly when homeowners decide that their home needs more living or storage space they may add a detached structure to their property. Examples of detached structures include a garage, carport, deck, unenclosed space (such as a covered patio), and enclosed space (such as a detached den or office).

Your next property improvement project may include plans for a detached structure. If this is the case, be sure that the detached structure complies with local zoning ordinances and building codes, in terms of both the use and physical design of the structure (including required setbacks). You may be required to obtain a city-issued building permit for your project. Visit the [City of Virginia Beach Department of Planning webpage](#) for more information.

The primary structure on your property has its own style, materiality and color. When planning to build a detached structure on your property, be sure to select colors and materials that will complement the existing primary structure, as well as the character of the surrounding neighborhood. The remainder of this section lists the key features for a selection of detached structures.

Garages

A detached garage is the appropriate option when regulations or physical constraints prohibit a homeowner from constructing a garage that is attached to the home. Also, some homeowners may simply prefer a detached garage. Detached garages are commonly situated to the side or rear of the main residential structure and should be accessible by a driveway or private alley.



Sheds

Sheds are often used as outdoor storage for a variety of items, including tools and gardening supplies. They are an attractive way to organize odds and ends that a homeowner prefers to store outside the home. Sheds should be situated between the rear façade of the home and the rear lot line of the property.



Enclosed Spaces

This type of upgrade is optimal for homeowners who are in need of an external structure to serve a specific purpose, such as a detached office or studio. To build this particular type of structure, it is especially important that plans for such a structure be approved by the city and that the plans meet all regulations set forth in the building code and zoning ordinances.

Other Structures

Carports

Like garages, carports are primarily used to shelter cars. A carport differs from a garage in that the carport is not a fully enclosed structure. For homeowners who wish to protect their vehicles from the elements, carports can be an effective and also lower-cost option than a garage. The carport should be located on either side of the home and be accessible by a driveway.



Unenclosed Structures

These structures may have a roof or covering, but do not have walls. A covered patio is the most common example.



Decks and Ramps

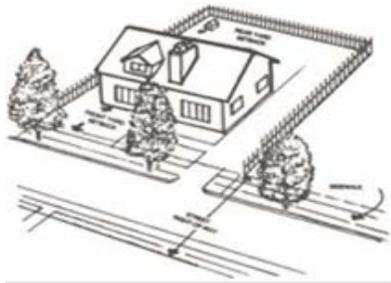
Decks are an outdoor living space – typically constructed of wood or a wood composite – that can be used for dining, entertaining and relaxing. Most often, decks are attached to the rear façade of the home, are elevated from the ground, and have railings.



[BUILDING BULLETIN One and Two Family Dwellings Decks and Residential Access Ramps](#)



Fences

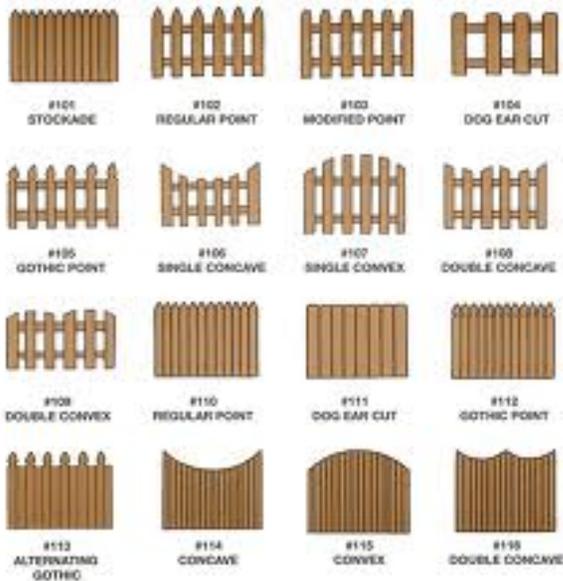


FENCE AND WALL BULLETIN

For more information on fences visit Permits and Inspections' website at <http://www.vbgov.com/government/departments/planning/permits-inspections/pages/fence-permits-inspections.aspx>.



Metal Fence Example



Wood Fence Examples



PVC Fence Example

Landscape Transformations

Preservation, renewal and *enhancement* of your home do not end at the exterior walls. The outdoor segments of your property hold endless possibilities for upgrades and landscaping design projects. Installing or improving driveways, sidewalks, gardens, patios, ponds or other outdoor features improves the aesthetic appeal of your property, improves the quality of the surrounding neighborhood, and boosts the value of your property.

Keep in mind that many homeowners' associations govern the type, style and quality of improvements that a homeowner may make to the exterior of a home. Consult your homeowner's association handbook before diving into any outdoor improvement project. For more information on landscaping visit <http://www.vbgov.com/government/offices/green/open-space-green/pages/riparian-buffer.aspx>.

Crime Prevention Through Environmental Design

[Crime Prevention Through Environmental Design](#), CPTED, is based on the idea that the proper design and effective use of the built environment can lead to a reduction in the incidence and fear of crime, and an improvement in the quality of life.

Driveways and Walkways

A driveway can be more than just a functional feature. Various layouts and materials can be used to transform your driveway into a stylish attribute of your property. There are a number of factors to consider in choosing the best layout for your driveway:

- Cost of materials
- Size and shape of the property/lot
- Location of any carport or garage
- Age and style of the home
- Climate
- Activities that do or will take place on the driveway

If you live in a cold, snowy climate or if there are children who often play in the driveway, it is advisable to finish the driveway with a smooth surface. If it rains often where you live, you may want to consider a permeable material for your driveway, which will allow for maximum drainage.

Remember that you do not necessarily need to remove your current driveway in order to update it. Adding driveway aprons, borders or even finishes can refresh the look and function of your driveway.

Like driveways, walkways, can serve as both a functional and aesthetic enhancement to your property through the use of various materials and layouts. Two or more materials may be used on a single driveway or walkway to create a desired texture or pattern. Walkways can be used to connect the front or back entrance of your home with drives, gardens, pools, spas or other outdoor features.

Patio

A patio is outdoor living space – typically a paved area alongside the home – that can be used for dining, entertaining or relaxing. A patio may be covered, but typically does not have side enclosures or walls. You can design a patio in virtually any shape or size and with any material. Below are examples of materials that can be used to construct a patio. These types of materials can be easily found at your local home improvement store.

- Brick



- Cobblestone



- Concrete – can be stamped, brushed or colored



- Flagstone



- Pavers



Vegetation

Planting flowers, shrubs, trees, grasses and other vegetation in your yard can help you gain more enjoyment from your property while also enhancing the surrounding neighborhood environment. Just a modest number of new plants can add color, texture, and shade to your outdoor living space.

Your selection of plants for outdoor improvement projects is important. Native plants offer many benefits over non-native species. Native plants thrive in local soil types and climate, and typically require far less maintenance than non-native plants. Look for specific plant types that require few or no pesticides or chemicals. In addition, native plants help create unique a sense of place. Here you can find a list of plants, native to the Virginia coastal plain area: www.dcr.virginia.gov/natural_heritage/documents/cp_nat_plants.pdf

Home Rehabilitation Programs

Your home is your castle – one of your most valuable investments. Keeping housing in good repair helps everybody enjoy a better quality of life. However, sometimes it is difficult to afford necessary repairs and improvements. The Department of Housing and Neighborhood Preservation (DHNP) offers a variety of programs to bridge the affordability gap. These programs make funds available to eligible owners for home repair and rehabilitation and to reduce future maintenance costs. For more information, call (757) 385-5760 or call (757) 385-5750. Program details are available online at <http://www.vbgov.com/government/departments/housing-neighborhood-preservation/homeowners/Pages/default.aspx>.

HUD Section 203(k) Program

When a homebuyer wants to purchase a house in need of repair or modernization, the homebuyer usually has to obtain financing first to purchase the dwelling; additional financing to do the rehabilitation construction; and a permanent mortgage when the work is completed to pay off the interim loans with a permanent mortgage. Often the interim financing (the acquisition and construction loans) involves relatively high interest rates and short amortization periods. The Section 203(k) program was designed to address this situation. The borrower can get just one mortgage loan, at a long-term fixed (or adjustable) rate, to finance both the acquisition and the rehabilitation of the property. For more information visit http://portal.hud.gov/hudportal/HUD?src=/program_offices/housing/sfh/203k/203kabou.

Fannie Mae HomeStyle Renovation Mortgage

HomeStyle Renovation combines home purchase or refinance with home improvement financing in one loan with one closing. The funds can be used for any repairs or renovations that are permanently affixed and add value to the property. Eligible borrowers include individual home buyers, investors, nonprofit organizations, and local government agencies. For more information visit <https://www.efanniemae.com/sf/mortgageproducts/pdf/hsrenofacts.pdf>.

CHAPTER 5: Specialty Design

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Green Building

The construction and life cycle of any building has a major impact on the environment in which we live. The objective of green building and design practices is to minimize the consumption of energy, water and materials during the construction process, thereby minimizing associated carbon emissions, pollution and waste. The benefits that accrue from engaging in green building practices are numerous – cleaner groundwater, fewer CO₂ emissions, reduced exposure to toxic chemicals/materials, cleaner indoor air, and long-term energy cost savings, among many others.

Going green is a key consideration in the housing market, with respect to both new construction and existing properties. Green, energy-efficient homes are less costly to operate, making them more desirable to potential buyers. Updating your house with eco-friendly and energy-efficient systems not only helps the environment – it benefits you financially, and also helps meet the growing demand for homes that features these systems.

This section orients you to what “green building” means as well as the standards that currently apply to green building practices. In this section you will also find suggested ways in which you can incorporate environmentally conscious, or *sustainable*, tactics into any home improvement project.



[What is green building?](#)

[Why build green?](#)

[Green building standards](#)

[Quick tips](#)

[Green building materials](#)

[Energy efficiency](#)

What is Green Building?

Green Building is an approach to design and construction that minimizes or eliminates the negative impacts of buildings on the environment (i.e. water use/waste water, energy use/CO₂ emissions, raw material mining/harvesting, and material and chemical waste) and the people who occupy them (i.e. chemicals in building materials that may affect indoor air quality). Green Building considers the entire life cycle of a structure from the design of the site and building, to the construction process, to the level of energy consumption required for ongoing maintenance.

A green building may be built using different methods and materials, but may look identical to a traditionally-constructed building. Some examples of green buildings techniques include: reflective metal or vegetation-covered roofs to reduce heat-gain; walls and floors made of recycled or locally harvested materials; heating, ventilation and air conditioning systems that rely on renewable energy sources such as solar, wind or geothermal; and many others. Green building design often incorporates innovative methods to utilize or redirect sunlight, throughout the year, in order to minimize the need to turn on electric lights.

Do Green Buildings Cost More? Not necessarily. Green building techniques and materials technology have evolved over the years. Prices of many eco-friendly building materials now fall within a range that is accessible to the average household. Today, many designers and developers are very familiar with green building practices and are able to apply them in cost-effective ways. Energy efficiency is a major component of green building design. Although green buildings can

have higher up-front costs, they will save homeowners money in the long-run on utility costs.

Why Build Green?

Green buildings can lead to a cleaner environment, better health and a stronger economy. Buildings consume two-thirds of all electricity used in the United States. Green Buildings can reduce energy consumption of an individual structure by up to 40%. Building construction and demolition create 136 million tons of waste per year. Green buildings encourage recycling and reuse of materials to reduce waste in our landfills. Most people spend hours in buildings where the air inside can be worse than outdoors. Green buildings make interiors cleaner, healthier and more comfortable. The benefits of green buildings are numerous and together they create a convincing case for changing the way we approach the construction and maintenance of buildings and homes.

Five Reasons to Go Green

1. Reduced energy and water consumption
2. Improved environmental health
3. Improved occupant health
4. Increased property value
5. Increased local economic growth



Green Building Standards

Green building projects are not generally governed by an alternate set of regulations. Anyone may freely choose to utilize green building techniques as long as their project complies with all applicable, local, state and federal regulations that govern traditional building projects.

Where green building guidelines come into play is when a contractor wishes to acquire a certification that his/her building has been constructed in accordance with a standardized set of green building practices. This certification demonstrates to a potential buyer that a specific standard of quality, and vetted techniques, have been employed in the construction of the building.

In the United States, the U.S. Green Building Council (USGBC) took the early lead in establishing standards and (LEED®) certifications for green building projects. There are multiple degrees of LEED® certifications, all based on a point-rating system. Historically, LEED® certifications have been focused almost exclusively on commercial construction.

More recently, the USGBC established a LEED® rating system for home construction. LEED® for Homes provides a checklist of suggested building practices as well as performance measures related to: energy efficiency, water use, site design, proximity of the building site to community amenities, indoor air quality, and efficient use of construction resources. Although this certification is geared for commercial home builders, individual home owners may voluntarily review and apply LEED® for Home standards to their own home improvement project.

Green Renovations

Five Areas of Concentration:

- 1) Environmental Considerations (Health, Air Quality, Waste Water, Storm water Management)
- 2) Waste Reduction
- 3) Pollution Prevention
- 4) Water Conservation
- 5) Energy Conservation

Green building/products focuses on energy efficiency, indoor environmental quality, resource efficiency, site management, and water conservation

Quick Tips – Make Your Home More Eco-friendly

Below is a list of strategies you can use to make your home more green and sustainable.

1. Replace conventional toilets, faucets and showerheads with *Energy Star* rated fixtures that conserve water.
2. When shopping for a new clothes washer or dishwasher, choose *Energy Star* rated appliances that conserve water.
3. Install a rainwater collection system. Rainwater is nutrient-rich and can be used to irrigate lawns and gardens. Depending on the complexity of your collection system, rainwater can also be a resource for indoor uses like showers or even drinking water.
4. Explore landscaping alternatives that require little to no water.
5. Landscape with native plants.
6. For outdoor projects that require weather-proofing, use cedar lumber instead of chemically treated wood types.
7. Choose wood products that are certified by the Forest Stewardship Council (www.fsc.org).
8. Save and recycle materials that you or a friend may be able to reuse for future projects.
9. Choose products that contain few or no VOCs (volatile organic compounds).

10. To the extent possible, use factory-built (“pre-fab”) components for your construction projects. Factories can produce building sections more efficiently than the average consumer. This leads to less overall material waste.

11. See the Energy Efficiency section below for green, energy-saving strategies.

Green Building Materials

It may not be obvious at first-glance, but building materials themselves are associated with major environmental impacts. Traditional manufacturing processes, for materials like sheetrock and concrete, consume significant amounts of energy and water and, at the same time, produce chemical by-products and CO₂. Many building materials contain toxic chemicals or produce vapors that are detrimental to human health.

Eco-friendly versions of many building materials are available at your local home improvement retailer or online. Below is a short list of eco-friendly building materials that you should consider using in place of traditional building materials for your next project.

Durable Roof Coverings

The more durable a material is the fewer times it will have to be replaced, which reduces waste. Certain types of roof coverings provide an extra degree of insulation or solar reflectivity. These

materials help maintain a consistent temperature on the home interior, resulting in reduced energy use and cost savings. Below is a list of durable or reflective roof coverings.

- Slate or clay tiles
- Steel, copper, or aluminum roof panels
 - Contain high percentages of recycled content, sometimes up to 100%, and can be easily recycled after use
- White membrane roof
 - Made with strong, flexible waterproof materials that offer high degree of solar reflectance
- Recycled plastic roof materials
 - Provide durability and are lightweight

Recycled Plastic Lumber

Plastic lumber is a wood-like product that is made either entirely of recovered plastic or a composite mix of recovered plastic and other materials. This material works well for many, many applications: flooring, decks, roofing shingles, fences, gates, retaining walls, compost bins, walkways, playground equipment, benches, picnic tables, animal stalls, and boat docks. Below are some of the benefits of this material.

- More durable / lasts longer than wood
- Does not crack / splinter free
- Non-toxic, non-porous
- Chemical and moisture resistant

- Does not require finishes, sealants or paint
- Very flexible, can be curved or shaped
- Maintenance-free
- Diverts plastic waste from landfills
- Low level of heat conductivity (helps maintain a more constant temperature indoors)

Eco-friendly Sheetrock / Wallboard

The traditional manufacturing process to produce sheetrock relies on mining gypsum rock, adding large quantities of water, and then drying finished boards at high temperatures. The energy required to fuel drying kilns produces billions of pounds of greenhouse gasses each year.

The process to manufacture eco-friendly sheetrock uses a high percentage of recycled materials and eliminates the heating process. Some sheetrock alternatives use compressed straw or other plant fibers with a resin binding to create wallboards. Although local retail outlets for sheetrock alternatives can be difficult to find, it is important to spread awareness that these material technologies exist. With increased demand, sheetrock alternatives may become easier to purchase in the future.

Low-VOC Carpeting

Volatile organic compounds (VOCs) can be found in an array of household items (paint, adhesives, fuel, cleaning supplies, pesticides, correction fluid). These compounds release gasses into the air that

can cause dizziness, headaches, nausea and even cancer, depending on the type of VOC. Most of the time, VOC-containing products are sitting on a shelf in an enclosed container or being used in a well-ventilated area. However, carpet adhesive can release a low-volume, yet steady stream of VOCs into your home environment long after it is first applied. These gasses produce that iconic “new-carpet-smell.”

- Low-VOC carpets utilize either no adhesives or adhesives that contain a lower proportion of VOCs.
- Choose carpets that are made of natural materials like sisal or wool or are made of recycled plastics.
- Forego adding stain repellants and treatments to your carpet as these often contain VOCs.

Energy Efficiency

The design of a home and the types of electrical systems present in a home set the bar for how much energy the home will require for daily use and maintenance. By replacing inefficient systems with energy-efficient ones, you can significantly reduce household energy consumption even without making changes to your lifestyle. Reducing household energy consumption not only helps preserve the environment, it also saves you money!

The great thing about energy efficiency upgrades is that they can be completed incrementally, one at a time, to fit your schedule and your budget. And some of these improvements cost nothing at all – just a little extra attention from you. Below is a list of things you can do to reduce household energy consumption.

- When shopping for new household appliances, choose *Energy Star* rated appliances (visit www.energystar.gov for more information)
- Replace traditional (incandescent) light-bulbs with energy-saving compact fluorescent (CFL) or light-emitting diode (LED) bulbs.
- Be comfortable, but also be frugal about where you set your thermostat (not too cool in the summer; not too warm in the winter).
- Unplug appliances that you do not frequently use. Even when appliances are switched off, they still draw current from electrical outlets.
- Choose HVAC systems that are efficient and appropriately sized for your home.
- Install a tank-less water heating system.
- Install solar, wind or other green-power systems.
- Insulate Your Home. All of the home-insulation improvements listed below should help maintain a consistent temperature in your home, cutting down on the energy required for heating and cooling. (visit
- Visit the Environment and Sustainability Office (www.vbgov.com/government/offices/eso/pages/default.aspx) and the Planning and Community Development Department (www.vbgov.com/government/departments/planning/Pages/home.aspx) for more information.

- All walls, attics, and crawl spaces should be buffered with insulation, on the outside perimeter of the home, all the way from the ground, up. It is recommended that you install insulation during initial construction, while interior walls are still open, rather than retrofitting.
- Insulate pipes and water heaters with appropriate/heat-safe materials.
- Seal or fill all leaks, cracks and wall voids.
- Ensure all openings to your home (doorways, windows, or garage doors) have a tight seal, to prevent drafts.
- Replace conventional glass elements (windows, doors, skylights) with energy-efficient/insulated ones.
- Plant trees in your yard to provide shade and wind protection.
- Energy efficient windows
 - Incorporate low-E glass coatings, glass filler between layers and composite framing materials; Energy Star products (windows, doors, skylight)
 - Keep temperature of home consistent; comfortable
 - Lower energy bills and saves money
 - Reduce green house gas emissions
- Energy star appliances and bathroom fixtures that save water
 - Replace faucets and toilets with fixtures that use less water each time it is turned on
 - Electronics such as televisions, radios, telephones and computers use less electricity than traditional appliances

- Appliances such as washers and dryers can save both energy and water
- Insulation
 - Sealing and insulating basements and attics helps reduce the amount of energy needed to cool or heat your home
 - Insulating walls and sealing openings, such as doorways, windows and garage doors prevents drafts that increase energy use of climate control
- Lighting
 - Replace traditional light-bulbs with energy-efficient bulbs
 - Install solar tubs for natural lighting
- Unplug any and all appliances that are not in use; even when they are off, appliances can still use up electricity

Tax Abatement and/or Relief

A special tax rate program provides an opportunity for Virginia Beach property owners to reduce the tax rate on qualified residential and commercial energy-efficient buildings, not including the land on which they are located. For more information on available energy efficient tax abatement programs visit <http://www.vbgov.com/government/offices/green/energy/pages/energy-efficient-buildings.aspx>.

Resources

Green Building

www.usgb.org Home page of the U.S. Green Building Council.

<http://greenhomeguide.com> An inter-active U.S. Green Building Council website where you can find answers to popular questions about green home remodeling projects and connect with professionals in the green home industry.

www.regreenprogram.org/docs/regreen_guidelines.pdf A resource developed by the American Society of Interior Designers and the U.S. Green Building Council. Provides guidelines for green home remodeling projects as well as case studies with before/after images.

www.energysavers.gov/your_home U.S. Department of Energy webpage that offers advice on how to conduct an assessment of how much energy you currently use in your home or apartment, as well as an array of methods to make your home more energy efficient.

www.greenbuildingsupply.com The City of Virginia Beach does not expressly endorse or promote any green building materials supplier, however this is a well-organized website that provides a catalog of many of the green building materials and supplies available on the market.

www.houselogic.com This site has tips and ideas related to almost every aspect of your home, including energy savings and green building.

www.carpetrecovery.org Provides information on how and where you can recycle used carpeting.

www.vbgov.com/government/offices/eso/pages/default.aspx Provides information about restoring, conserving and harnessing natural resources to meet the needs of future generations.

<http://www.diynetwork.com/> Do It Yourself (DIY) Network's programs and experts answer the most sought-after questions and offer creative projects for do-it-yourself enthusiasts.

Energy Conservation/ Efficiency

http://www.energystar.gov/index.cfm?c=home_improvement.hm_improvement_audits

http://www.energysavers.gov/your_home/energy_audits/index.cfm/mytopic=11160

<http://www.vbgov.com/government/offices/green/energy/Pages/energy-conservation.aspx>



Solar Power

<http://www.vbgov.com/government/offices/green/energy/Pages/solar-power.aspx>

Rain Barrels and Rain Gardens

<http://www.vbgov.com/government/departments/public-utilities/water-conservation/pages/make-your-own-rain-barrel.aspx>



<http://www.vbgov.com/government/offices/green/open-space-green/pages/stormwater-bioretenion.aspx>



Emergency Preparedness

<http://www.vbgov.com/residents/emergency-preparedness/pages/protecting-your-property.aspx>

Historic Renovation Tax Relief

<http://www.vbgov.com/government/departments/real-estate-assessor/tax-relief-programs/pages/historic-renovation-residential.aspx>

Senior and Disabled Tax Relief Programs

<http://www.vbgov.com/government/departments/real-estate-assessor/tax-relief-programs/Pages/senior-disabled-tax-relief.aspx>

Lynnhaven River Now

<http://www.lynnhavenrivenow.org/>

Elizabeth River Project

<http://www.elizabethriver.org/RiverStars/default.aspx>

Old Beach Overlay District, Design Guidelines, and Design Review Committee

<http://www.vbgov.com/government/departments/planning/boards-commissions-committees/pages/old-beach.aspx> The Old Beach Neighborhood is one of the oldest residential areas at the Oceanfront, established in 1915. The neighborhood consists primarily of single-family dwellings, a substantial number of duplex dwellings, and a smaller number of multi-family dwellings scattered throughout.



Child Proofing

Why is Child-Proofing Important? Simple, every-day features of a household can pose a danger to children. It is important for parents and guardians to be aware of these potential hazards and do their best to make the home environment as safe as possible for their children – from infants to pre-teens. Below is a quick guide to help you develop your own strategy to create a safer home environment for your children.

- ✓ Attach safety catches to drawers, doors and cabinets that hold potentially dangerous items such as knives, household cleansers, chemicals and medications.

- ✓ Replace window-blind components that pose a choking hazard. Long cords with small pull-beads at the end can be trimmed and replaced with tassels.

- ✓ Install door knob covers and/or safety gates to keep children from roaming into dangerous spaces, onto stairs or out of the adult's line of sight. Pressure gates are less effective than attached gates. When installing any safety gate, ensure that there are no openings on or around the gate that are large enough for a child's head to fit through.

- ✓ To prevent falling, use latches, safety guards or safety netting on windows, balconies, patios and decks. Make sure that at least one window in each child's bedroom is fully operable in case of a fire.

- ✓ Cover all sharp corners and rough edges of doors, walls and furniture to prevent injury. Corner/edge guards are inexpensive and are available in a variety of colors to match almost any home décor scheme.

- ✓ Some furniture can be unstable or top-heavy, and has the potential to tip over on a child. Secure furniture (such as free-standing bookcases) with wall-angle braces or anchors.

- ✓ Tiny fingers or children's toys can often fit into electrical outlets. Be sure to cover electrical outlets that are not in use.

- ✓ Install smoke alarms on every level of your home, outside of each sleeping area, and in each bedroom. Develop a household fire escape strategy that includes at least two ways out of every room. Discuss the strategy with your children and be sure they understand how to follow it. Practice the escape plan with your children.

- ✓ Install carbon monoxide detectors on every level of the home and outside of all sleeping areas. Test carbon monoxide detectors once a month. Prevent CO buildup in the first place by keeping heating systems and appliances in good working order.

- ✓ Place space heaters at least three feet away from anything that can catch fire (like curtains, furniture or papers). Always turn off space heaters when leaving the room or going to bed.

- ✓ Keep toilet lids shut and use toilet locks.

- ✓ Set your water heater to 120 degrees or lower to prevent children from being scalded by tap or bath water.
- ✓ Regularly check to make sure drain covers are secure and have no cracks. Replace flat drain covers with dome-shaped ones.
- ✓ Install four-sided isolation fencing at least 4 feet high, equipped with self-closing and self-latching gates, around home swimming pools to prevent infants and toddlers from risk of drowning. Refer to the International Residential Code (IRC) book for regulations as it pertains to swimming pools at <http://www.iccsafe.org/Store/Pages/Product.aspx?id=3100X09>.

Adaptive Design for Universal Living

As adults age, some may move into assisted living facilities or nursing homes. However, many seniors will either remain in their own home or move in with family members. When a senior is living in a home environment, adjustments must be made in order to ensure the home is both comfortable and safe for seniors and their caretakers. Below is a list of home improvements that can help make this life-transition a smooth one.

1. Pathways and areas where medication is dispensed or administered must be well lit, whether they are used by senior citizens or caretakers. A variety of lighting can be used, including, but not limited to, ceiling lights or night lights.

2. In a senior living environment, there should be a minimum of required level changes or travel up and down stairs. Primary living spaces (including bedrooms and bathrooms) should be on the ground floor and require no level changes. All floors should have some type of non-slip surface. All pathways should be clear and free of carpeting or loose wires.

3. Railings, ramps and grab bars should be installed throughout the home where appropriate (especially in the bathroom). Portable grab bar models that rely on suction cups rather than permanent bolts are an option for smooth surfaces. Portable grab bars are only appropriate for some adults, depending on body weight. Modular rubber or metal ramp products are available and appropriate for minor level changes. Stand-alone ramp products can be less expensive than constructing a permanent ramp.

4. If care providers are to live in the home, there should be a room for sleeping as well as a desk space for administrative duties.

5. It is advisable to replace door knobs with levers, which are easier for seniors to open. All appliances and furniture in the home should be both easy to use and require minimal maintenance.

6. If you are assisting a senior family member with plans for a major home remodeling project, you have the option of hiring a consultant who specializes in adaptive reuse for seniors. This type of professional will typically conduct a full assessment of the home, develop a recommended design program, and serve as the coordinator between you, the senior's medical supervisor, and the remodeling/construction contractor.

Source:

http://www.associatedcontent.com/article/570217/top_10_home_improvement_tips_for_senior.html?cat=6

Stair Lifts

A stair lift is a mechanical device designed to lift people and wheelchairs up and down a flight of interior or exterior stairs. A chair lift provides safety and mobility as well as convenience. For sufficiently wide stairs a chair or lifting platform is attached to the rail, a rail is mounted to the treads of the stairs. Stair lifts as shown below may be mobile chairs or perches that travel up and down a rail which attaches directly to your stairs



Stair Lift with Perch Example



Mobile Chair Lift Example

Accessible Bathtubs and Showers

Accessible bathtubs are bathtubs that can be used by people with limited mobility or the disabled. A bathtub can be made accessible for some people by the addition of grab bars or hand grips, or through the use of lifts that lower and raise the bather in the water.



Walk In Tubs Example



Accessible Showers Example

Accessibility

The Americans with Disabilities Act (ADA) of is a federal law that was passed in 1990 with the intent of protecting the civil rights of, and prohibiting discrimination against, persons with disabilities. Provisions of the Act address a broad spectrum of societal institutions including employment, transportation, schools, buildings/commercial facilities and telecommunications systems among others.

When we think about disabilities, an image of a wheelchair or mobility assistance device may come to mind. However, it is important to remember that not all disabilities may be apparent to the viewer. Mental, visual, hearing, dexterity or learning impairments are examples of disabilities that may also require specialized types of accommodation.

The law requires commercial buildings and facilities to comply with a set of design and layout standards to accommodate persons with disabilities. The U.S. Department of Justice compiles a publication that describes these standards in precise detail. The full-text of the most recent publication – **2010 ADA Standards for Accessible Design** – is available here: www.ada.gov/2010ADASTandards_index.htm

Although individual homeowners need not comply with ADA regulations, the ADA design standards serve as a helpful guide for those homeowners who wish to make their home more accessible to a disabled member of the household. The below section suggests just a few ways you can make your home more accessible and easy to navigate.



Entry

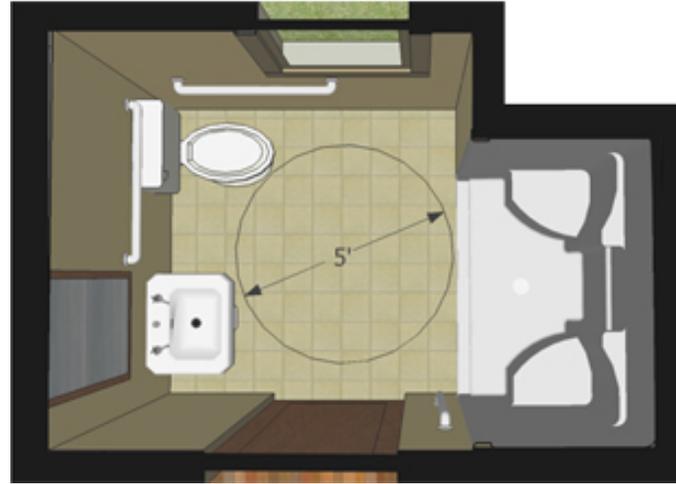
When the entry into a building is not level with the ground outside, a ramp should replace or accompany stairs that lead from the ground to the entry. Ramps should have a grade no steeper than 1:16 to 1:20 (5% to 6.25% incline or less).

[BUILDING BULLETIN One and Two Family Dwellings Decks and Residential Access Ramps](#)



Bathrooms

- Bathrooms must be large enough for a wheelchair to enter and exit efficiently. An accessible bathroom should be large enough to accommodate, at a minimum, an open, 5-foot turning radius that is unobstructed by the door-swing area, walls, plumbing fixtures, cabinets and/or shelving.
- Ideally, the shower entry should be completely unobstructed (wall-less). Well-equipped showers will include a seat (either foldable or permanently fixed) at a height that is suited to the user.
- In projects where the homeowner plans to keep an existing bathtub instead of replacing it with a roll-in shower, a permanent or removable seat can be installed over the top of the bathtub. This improvement should be accompanied by the installment of a hand-held showerhead.
- Mirrors should be at a height that is appropriate for the disabled individual's line of sight.



Bathroom Features

- 5-foot, unobstructed radius
- Wheelchair accessible shower
- Grab bars near toilet
- Grab bars near and inside shower/tub
- Sink that is easily accessible to individuals in wheelchairs

Doorways and Passageways

Paths and walkways through the home should be a minimum of 32 inches wide, and 48 inches wide at the turn-around. The width of doorway clearances depends upon the type of door and the approach to the doorway. See section 404 of the 2010 ADA Standards for Accessible Design document for details about doorway clearances.

Countertops

Countertops, tables and sinks should be situated at a height that allows users to both see and reach across these surfaces, but no higher than 36 inches from the ground.

Kitchen Designs and Appliances

For placement of countertop and under counter kitchen appliances consideration should be given to several factors, including physical requirements of food preparation, height and mobility of user, etc. For additional information on accessible kitchen designs and appliances visit Dynamic-Living.com or Asktooltalk.com.

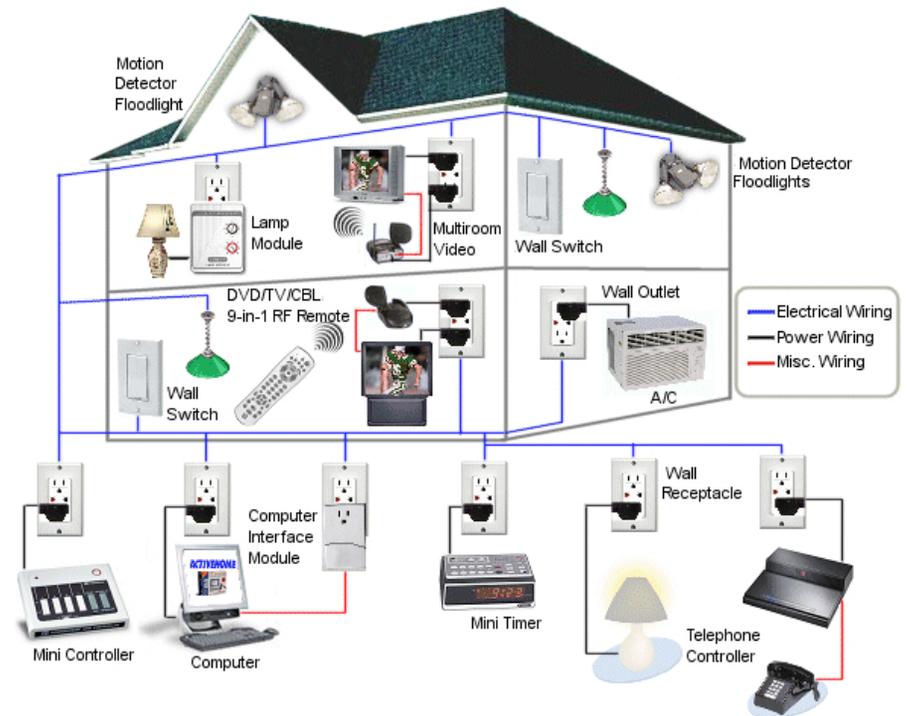


Home Automation

Around the world, home automation is becoming a common practice. The same mobile technologies that have driven the proliferation of cell phones and similar devices are creating opportunities for residents to operate home maintenance systems from remote locations. Technologies currently exist that allow residents to turn home lighting, HVAC, sprinkler and other systems on and off from their cell phone or mobile device.

For those who may not use any type of mobile device, these same home systems can be controlled through pre-set timers. There are even more advanced home automation options, such as sensors to turn lights on when a person enters the room, or stereo systems to adjust music volume according to the day and time of the week.

It is more efficient and cost-effective to install home automation systems during the original construction process, as these systems are often concealed within ceilings and walls. However, existing homes can still incorporate home automation through the use of non-intrusive wireless systems.



APPENDIX A: RESOURCES AND RELATED LINKS

Related Links

Below is a list of external web links with additional information about the topics covered in the City of Virginia Beach Online Pattern Book. The City will continually update our Related Links, so check back for even more information.



Local, State and National Government Agencies

Americans With Disabilities Act – ADA (<http://www.ada.gov>)

Federal Emergency Management Agency – FEMA (<http://www.fema.gov>)

The U.S. Department of Housing and Urban Development – HUD
(<http://portal.hud.gov/portal/page/portal/HUD>)

The U.S. Department of Energy – DOE (<http://www.energy.gov>)

U.S. Green Building Council – USGBC (<http://www.usgbc.org>)

Virginia Beach Communications & Information Technology
(<http://comit.vbgov.com>)

Virginia Beach Economic Development
(<http://www.yesvirginiabeach.com/>)

Virginia Beach Housing and Neighborhood Preservation
(<http://housing.vbgov.com>)

Virginia Beach Real Estate Assessor’s Office
(<http://assessor.vbgov.com>)

Virginia Beach Planning Department and Community Development
(<http://www.vbgov.com/government/departments/planning/Pages/home.aspx>)

Professional Associations

American Institute of Architecture – AIA (<http://www.aia.org>)
Associated General Contractors of America – AGC (<http://www.agc.org>)
National Association of Home Builders – NAHB (<http://www.nahb.org>)
National Association of Realtors (<http://www.realtor.org>)
National Association of the Remodeling Industry – NARI (<http://www.nari.org>)
Tidewater Builders Association- Remodelers Council- TBA (<http://www.tbaonline.org/remodelers.org>)

Construction

Virginia Department of Professional and Occupational Regulation (<http://www.dpor.virginia.gov/>)
Start Remodeling (<http://www.startremodeling.com/>)
The Blue Book (<http://www.thebluebook.com>)
City of Virginia Beach, Permits and Inspections Division (<http://www.vbgov.com/government/departments/planning/permits-inspections/Pages/default.aspx>)
International Residential Code (<http://www.iccsafe.org/Store/Pages/Product.aspx?id=3100X09>)

Sustainability

Determine your Ecological Footprint (<http://www.myfootprint.org/en>)
Greener Buildings (<http://www.greenbiz.com/buildings>)
City of Virginia Beach, Environment and Sustainability Office (<http://www.vbgov.com/government/offices/eso/pages/default.aspx>)

Neighborhood Associations

(<http://government/departments/emergency-communications-citizen-services/vb311/pages/neighborhood-association-information.aspx>)

Virginia Beach Council of Civic Organizations (<http://www.vbccco.org/default.aspx>)

Other

Residential Architectural Styles (<http://realtormag.realtor.org/home-and-design/guide-residential-styles>)

APPENDIX B: GLOSSARY

Glossary of Construction Terms

A

A/C – An abbreviation for air conditioner or air conditioning.

A/C Condenser – The outside fan unit of an air conditioning system. Removes heat from the freon gas and converts the gas back into a liquid. Then pumps the liquid back to the coil in the furnace.

A/C Disconnect – The main electrical ON-OFF switch near the A/C condenser.

ABS – A type of black plastic pipe commonly used for waste water lines.

Addendum (Addenda) – Written information adding to, clarifying or modifying the bidding documents. An addendum is generally issued by the owner to the contractor during the bidding process and as such, addenda are intended to become part of the contract documents when the construction contract is executed.

Allowance(s) – A sum of money set aside in the construction contract for items that have not been specified in the construction contract. Best kept to a minimum number and used for items whose choice will not impact earlier stages of the construction. For example, selection of tile as flooring may require an alternative framing or underlayment material.

Anchor bolts – Bolts to secure a wooden sill plate to concrete, or masonry floor or wall.

Apron – The flat member of the inside trim of a window placed against the wall immediately beneath the stool.

Asbestos – A silicate mineral. There are various types of asbestos, but all types share the tendency to form long, fibrous crystals. Asbestos is resistant to extreme temperatures, is strong and also absorbs sound. Because of its properties it was widely used in insulation, fireproofing, and acoustical materials, floor tiles, shingles, door gaskets, joint compound, and auto brake pads. Homes that were built before the 1980's may have asbestos-containing materials in them.

Attic access – An opening that is placed in the ceiling of a room, through the drywall, in order to provide access to the attic.

B

Backfill – The replacement of excavated earth into a trench around or against a basement /crawl space foundation wall.

Balusters – Vertical members in a railing used between a top rail and bottom rail or the stair treads. Sometimes referred to as “pickets” or “spindles.”

Balustrade – The rail, posts and vertical balusters along the edge of a stairway or elevated walkway.

Base or baseboard – A trim board placed against the wall around the room next to the floor.

Base shoe – Molding used next to the floor on interior base board.

Bat – A cut brick.

Batt – A section of fiber-glass or rock-wool insulation measuring either 15 or 23 inches wide by four to eight feet long and of various thicknesses. Sometimes "faced" (meaning to have a paper covering on one side) or "unfaced" (without paper).

Batten – Narrow strips of wood used to cover joints or as decorative vertical members over plywood or wide boards.

Bay window – Any window space projecting outward from the walls of a building. May be either square or polygonal in shape.

Beam – A horizontal framing member designed to carry a load from a set of joists or a roof and spanning an open space. Beams are typically 6 inches x 6 inches or 4 inches x 10 inches or larger.

Bearing partition – A partition that supports any vertical load in addition to its own weight.

Bearing point – A point where a bearing or structural weight is concentrated and transferred to the foundation

Bearing wall – A wall that supports any vertical load in addition to its own weight.

Bid – A formal offer by a contractor, in accordance with specifications for a project, to do all or a phase of the work at a certain price in accordance with the terms and conditions stated in the offer.

Bifold door – Doors that are hinged in the middle and require a smaller space for opening than standard swinging doors. Often used for closet doors.

Blankets – Long rolls of fiber-glass or rock-wool insulation, available in 15 or 23 inches widths.

Blocking – Small wood pieces to brace framing members or to provide a nailing base for gypsum board or paneling.

Block out – To install a box or barrier within a foundation wall to prevent the concrete from entering an area. For example, foundation walls are sometimes "blocked" in order for mechanical pipes to pass through the wall, to install a crawl space door, and to depress the concrete at a garage door location.

Blow insulation – Loose fiber insulation that is blown or sprayed into place. Used to insulate attics and existing walls where framing members are not exposed.

Blue Print(s) – A type of copying method often used for architectural drawings. Usually used to describe the drawing of a structure that is prepared by an architect or designer for the purpose of design and planning, estimating, securing permits and actual construction.

Bottom chord – The lower or bottom horizontal member of a truss.

Bottom plate – The beams that lay on the subfloor upon which the vertical studs are installed. Also called the "sole plate."

Brick lintel – The metal angle iron that brick rests on, especially above a window, door, or other opening.

Brick mold – Trim used around an exterior door jamb into which siding abuts.

Brick tie – A 6- to 8-inch corrugated metal strip that is nailed to wall sheathing or studs. They are inserted into the grout mortar joint of the veneer brick and hold the veneer wall to the sheeted wall behind it.

Brick veneer – A vertical facing of brick laid against and fastened to sheathing of a framed wall or tile wall construction.

Bridging – Small wood or metal members that are inserted in a diagonal position between the floor joists or rafters at mid-span for the purpose of bracing the joists/rafters and spreading the load.

Building codes – Community ordinances governing the manner in which a home or other structure may be built or modified.

Building insurance – Insurance purchased to protect against financial losses stemming from the damage or complete destruction of a structure or structures that you own.

Building paper – A general term for papers, felts, and similar sheet materials used in buildings without reference to their properties or uses. Generally comes in long rolls.

Built – up roof – A roofing composed of three to five layers of asphalt felt laminated with coal tar, pitch, or asphalt. The top is finished with crushed slag or gravel. Generally used on flat or low-pitched roofs.

Bull nose – Rounded corners.

Bundle – A package of shingles. Normally, there are 3 bundles per square and 27 shingles per bundle.

Bypass doors – Doors that slide by each other and commonly used as closet doors.

C

CO – An abbreviation for "Certificate of Occupancy." This certificate is issued by the local municipality and is required before anyone can occupy and live within the home. It is issued only after the local municipality has made all inspections and all monies and fees have been paid.

Caisson – A 10- or 12-inch diameter hole drilled into the earth and embedded 3 to 4 feet into bedrock. The structural support for a type of foundation wall, porch, patio, monopost, or other structure. Two or more lengths of reinforcing bars (rebar) are inserted into and run the full length of the hole and concrete is poured into the caisson hole.

Cantilever – An overhang. Where one floor extends beyond and over a foundation wall. For example at a fireplace location or bay window. Typically, not extending over 2 feet.

Cantilevered void – Foundation void material used in highly expansive soil conditions. This void is trapezoid-shaped and has vertical sides of 6 and 4 inches respectively.

Cap – The upper member of a column, pilaster, door cornice, molding, or fireplace.

Cap flashing – The portion of the flashing attached to a vertical surface to prevent water from migrating behind the base flashing.

Casement – Frames of wood or metal enclosing part or all of a window sash. May be opened by means of hinges affixed to the vertical edges.

Casement window – A window with hinges on one of the vertical sides. Swings open like a normal door.

Casing – Wood trim molding installed around a door or window opening.

Caulking – A flexible material used to seal a gap between two surfaces (i.e. between pieces of siding or the corners in tub walls).

Ceiling joist – One of a series of parallel framing members used to support ceiling loads and supported, in turn, by larger beams, girders or bearing walls. Also called roof joists.

Cement board (also Durock® or WonderBoard) – A panel made out of concrete and fiberglass usually used as a ceramic backing material for tile applications. Commonly used on bathtub decks.

Chair rail – Interior trim material installed about 3 to 4 feet horizontally up the wall.

Change order – A written construction document which modifies the plans and specifications and/or the price of the construction contract.

Chip board – See Oriented Strand Board.

Circuit breaker – A device that looks like a switch and is located inside the electrical panel or circuit breaker box in a home or building. A regular circuit breaker switch is designed to shut off the power to the portion of the home it controls and also limits the amount of power flowing through a circuit (measured in amperes). A main circuit breaker switch is designed to shut off power to the entire home.

Clapboard – A long, thin, flat piece of wood with edges horizontally overlapping in series, used to cover the outer walls of buildings.

Clean out – An opening providing access to a drain line. Closed with a threaded plug.

Codes – Prevailing regulations, ordinances or statutory requirements set forth by governmental agencies associated with building construction practices and owner occupancy. Adopted and administered for the protection of the public health, safety and welfare.

Cold air return – The ductwork (and related grills) that carries room air back to the furnace for re-heating.

Column – A vertical structural compression member which supports loads.

Combustion air – The duct work installed to bring fresh, outside air to the furnace and/or hot water heater. Normally two separate supplies of air are brought in: one high and one low.

Community association – A non-profit neighborhood association that is responsible for common areas of a residential community and helps

maintain residents' compliance with neighborhood codes, covenants and regulations (CCRs).

Compressor – A mechanical device that pressurizes a gas in order to turn it into a liquid, thereby allowing heat to be removed or added. A compressor is the main component of conventional heat pumps and air conditioners. In an air conditioning system, the compressor normally sits outside the home and has a large fan (to remove heat).

Concrete – A construction material used for foundations, ground level floors and sidewalks. Most concrete is made out of Portland cement, sand, and gravel or aggregate. Concrete is commonly reinforced with steel rods, known as rebar or wire screening, called mesh.

Concrete block – Often used in low-rise commercial and some residential construction, a hollow concrete “brick.” Most commonly 8 inches x 8 inches x 16 inches in size. The original design and use is attributed to the architect Frank Lloyd Wright.

Concrete board – See “cement board.”

Condensing unit – The outdoor component of a cooling system. It includes a compressor and condensing coil designed to radiate heat.

Conduit, electrical – A pipe, usually metal, in which wire is installed.

Construction contract – A legal document that includes the specifics of “what,” “when,” “where,” “how,” “how much,” and “by whom,” of a construction project. It usually includes the contractors registration number; a statement of work quality such as “Standard Practices of the Trades” or “according to Manufacturers Specifications;” a set of

blue prints or plans; a set of specifications; any allowances; a construction timetable, including starting and completion dates; a set price for the work, or a time and materials formula; a payment schedule; a written warrantee; and a clause which outlines how any disputes will be resolved. Like all contracts, you should engage an attorney to review a construction contract before you sign it.

Construction documents – A term used to represent all drawings, specifications, addenda, and other pertinent construction information associated with the construction of a specific project.

Construction, drywall – A type of construction in which the interior wall finish is applied in a dry condition – generally in the form of sheet materials or wood paneling – as opposed to plaster.

Construction, frame – A type of construction in which the structural components are wood or depend upon a wood frame for support.

Contractor – A company licensed to perform construction activities. In most states, a general contractor's license and some specialty contractor's licenses don't require compliance with bonding, workmen's compensation and similar regulations. Some of the specialty contractor licenses involve extensive training, testing and/or insurance requirements. There are various types of contractors:

- **General contractor** – Responsible for the execution, supervision and overall coordination of a project and may also perform some of the individual construction tasks. Most general contractors are not licensed to perform all specialty trades and must hire specialty contractors for such tasks (i.e. electrical, plumbing, etc.).

- **Remodeling contractor** – A general contractor who specializes in remodeling work.
- **Specialty contractor** – Licensed to perform a specialty task (i.e. electrical, plumbing, heating and cooling and asbestos abatement).
- **Subcontractor** – A general or specialty contractor who works for another general contractor.

Cooling load – The amount of cooling required to keep a building at a specified temperature during the summer, usually 78°F, regardless of outside temperature.

Corbel – The triangular, decorative and supporting member that holds a mantel or horizontal shelf.

Corner braces – Diagonal braces at the corners of the framed structure designed to stiffen and strengthen the wall.

Cornice – Overhang of a pitched roof, usually consisting of a fascia board, a soffit, and appropriate trim moldings.

Counter flashing – A metal flashing usually used on chimneys at the roofline to cover shingle flashing and used to prevent moisture entry.

Crawl space – A shallow space below the living quarters of a house. Normally enclosed by the foundation wall and having a dirt floor.

Cricket – A second roof built on top of the primary roof to increase the slope of the roof or valley. A saddle-shaped, peaked construction

connecting a sloping roof with a chimney. Designed to encourage water drainage away from the chimney joint.

Crown molding – A molding used on cornice or wherever an interior angle is to be covered, especially at the roof and wall corner.

Culvert – Round, corrugated drain pipe (normally 15 or 18 inches in diameter) that is installed beneath a driveway and parallel to and near the street.

Cupping – A type of warping that causes boards to curl up at their edges.

Curb – The short elevation of an exterior wall above the deck of a roof. Normally a 2- by 6-inch box (on the roof) on which a skylight is attached.

D

Damper – A metal flap or door placed above the fireplace within the chimney. Normally closed when the fireplace is not in use.

Dampproofing – The black, tar like waterproofing material applied to the exterior of a foundation wall.

Daylight – The end of a pipe (the terminal end) that is not attached to anything.

Dead bolt – A security lock installed on exterior entry doors that can be activated only with a key or thumb-turn. Unlike a latch, which has a beveled tongue, dead bolts have square ends.

Dead light – The fixed, non-operable window section of a window unit.

Deck, decked – To install the plywood or wafer board sheathing on the floor joists, rafters, or trusses.

Dedicated circuit – An electrical circuit that serves only one appliance (i.e. a dishwasher) or a series of electric heaters or smoke detectors.

De-humidistat – A control mechanism used to operate a mechanical ventilation system based upon the relative humidity in the home.

Design – A graphical representation consisting of plan views, interior and exterior elevations, sections, and other drawings and details to depict the goal or purpose for a building or other structure.

Design-build construction – When a prime or main contractor bids or negotiates to provide design and construction services for the entire construction project.

Designer – One who designs houses, interiors, landscaping or other entities. When utilized in the context of residential construction, it usually suggests that a designer is not a licensed architect. Most jurisdictions do not require an architectural license for most single-family dwelling construction.

Detail – 1) An individual part or item 2) A graphical scale-representation of construction part(s) or item(s) showing materials, composition and dimensions.

Doorjamb, interior – The surrounding case into which, and out of which, a door closes and opens. It consists of two upright pieces, called side jambs, and a horizontal head jamb 2) The door stop is installed on each of these three jambs.

Door stop – The wooden style that the door slab will rest upon when in a closed position.

Dormer – A roof gable that is usually located at right angles to the main roof structure. It is used to increase head room. It can also be used as an architectural detail.

Double glass – Window or door in which an air space is sealed between two panes of glass. Also known as insulating glass.

Double-hung window – A window with two vertically sliding sashes. This window design was common on older homes, was usually made out of wood, and tends to require frequent repairs.

Downspout – A pipe, usually of metal, for carrying rainwater down from horizontal roof gutters.

Drain tile – A perforated, corrugated plastic pipe laid at the bottom of the foundation wall and used to drain excess water away from the foundation. It prevents ground water from seeping through the foundation wall. Sometimes called a perimeter drain.

Draw – The amount of progress billings on a contract that is currently available to a contractor, under a contract with a fixed payment schedule.

Drawings – 1) A term used to represent the portion of the contract documents that graphically illustrates the design, location and dimensions of the components and elements contained in a specific project. 2) A line drawing.

Drip – 1) A member of a cornice or other horizontal exterior finish course that has a projection beyond the other parts for throwing off water. 2) A groove in the underside of a sill or drip cap to cause water to drop off on the outer edge instead of drawing back and running down the face of the building.

Drip cap – A molding or metal flashing placed on the exterior topside of a door or window frame to cause water to drip beyond the outside of the frame.

Dry in – To install the black roofing felt (tar paper) on the roof.

Dry rot – See fungal wood rot.

Drywall – Also known as gypsum wallboard (GWB), sheet rock or plasterboard. A wall finish consisting of a manufactured panel made out of gypsum plaster and encased in a thin paperboard. It is usually ½ inch thick and 4 by 8 feet or 4 by 12 feet in size. The panels are nailed or screwed onto the framing and the joints are taped and covered with a joint compound. Green board type drywall has a greater resistance to moisture than regular (white) plasterboard.

Ducts – The elements of a heating or cooling system that let out into the rooms of a home or building. Usually round or rectangular metal pipes installed for distributing warm (or cold) air from the furnace or air conditioning unit to rooms in the home. Also a tunnel made of galvanized metal or rigid fiberglass, which carries air from the heater or ventilation opening to the rooms in a building.

Durock® – See “cement board.”

E

Easement – A formal contract that allows a party to use the property of another party for a specific, limited purpose, typically for passage from one place to place. For instance, a sewer easement might allow one party to run a sewer line through a neighbor’s property, or a sidewalk easement allows the public to walk across the front of a private property.

Eaves – The horizontal exterior overhang of a roof.

Egress – A means of exiting the home. An egress window is required in every bedroom and basement for escape in case of a fire. Normally a 4- by 4-foot window is the minimum size required by code.

Electrical rough – Work performed by the electrical contractor after the plumber and heating contractor are complete with their phase of work. Normally all electrical wires, and outlet, switch, and fixture boxes are installed (before insulation).

Escutcheon – An ornamental plate that fits around a pipe extending through a wall or floor, to hide the cut out hole.

Estimate – The amount of labor, materials, and other costs that a contractor anticipates for a project as summarized in the contractor’s bid proposal for the project.

Estimating – The process of calculating the cost of a project. This can be either a formal or a quick and imprecise process.

Exposed aggregate – A method of finishing concrete which washes the cement/sand mixture of the top layer of the aggregate (usually gravel). Often used for driveways, patios and other exterior surfaces.

The exterior envelope – The portion of the building that consists of all components protecting the building from the outside environment. Includes roofing, siding, windows, exterior doors, porches, flashing trim, caulking, waterproof decking, venting systems, chimneys and other elements which relate to the exterior surfaces of the structure.

Extras – Additional work, not included in the original plan, that the client may request of a contractor. Extras increase the cost of building the home, but are billed separately and do not alter the original contract amount.

F

Façade – Main face or principle side of a building given special architectural or decorative treatment.

Fascia – A vertical, 1 by 6 inch wood member (such as cedar) that is nailed to the ends of the rafters. Often serves as the backing for the gutter.

Felt – Tar paper. Installed under the roof shingles. Normally 15- or 30-pound thickness.

Fenestration – Any opening in a building or home including doors or windows.

Finger joint – A manufacturing process of interlocking two shorter pieces of wood end to end to create a longer piece of dimensional lumber or molding. Often used in jambs and casings and are normally painted (rather than stained).

Fire stop – A solid, tight closure of a concealed space, placed to prevent the spread of fire and smoke through a space. In a frame wall, this usually consists of 2 by 4 cross blocking between studs.

Fixed price contract – A contract with a set price for the entire project.

Flashing – The building component used to connect sections of a roof, deck, or siding material to another surface such as a chimney, wall, or vent pipe. It is often composed of various metals, rubber or tar and is primarily intended to prevent water entry.

Flat paint – An interior paint that contains a high proportion of pigment and dries to a flat or lusterless finish.

Flatwork – Common word for concrete floors, driveways, basements, and sidewalks.

Fluorescent lighting – A fluorescent lamp is a gas-filled glass tube with a phosphorus coating on the inside. Gas inside the tube is ionized by electricity which causes the phosphorus coating to glow. Normally with two pins that extend from each end and insert into a light fixture.

Flue – Large pipe through which fumes escape from a gas water heater, furnace, or fireplace. Normally these flue pipes are double-walled, galvanized sheet metal and sometimes referred to as a "B vent." Fireplace flue pipes are normally triple walled. *Note: nothing combustible should be placed within one inch of a flue pipe.*

Flue lining – Fire clay or terra-cotta pipe, round or square, usually made in all ordinary flue sizes and in 2-foot lengths, used for the inner lining of chimneys with the brick or masonry work around the outside. Flue lining in chimneys runs from about a foot below the flue connection to the top of the chimney.

Footer (or footing) – Continuous 8- or 10-inch thick concrete pad, installed before and supports the foundation wall or monopost.

Forced air heating – A form of heating with natural gas, propane, oil or electricity as a fuel. Air is heated in the furnace and distributed through a set of metal or plastic ducts to different areas of the house or building.

Form – Temporary structure erected to contain concrete during placing and initial hardening.

Foundation – The supporting portion of a structure below the first floor construction, or below grade, including the footings.

Framer – The carpenter contractor who completes all work related to the wood structure of the home: erects the frame, and installs the flooring system, interior walls, backing, trusses, rafters, decking, beams, stairs, and soffits. The framer builds the home according to the blueprints and must comply with local building codes and regulations.

Framing – The structural wood and/or metal elements of most homes. The floor and ceiling framing is called the joist work. Wall framing is usually made out of 2- by 4-inch or 2- by 6-inch studs.

Framing, platform – A system of framing in which floor joists of each story rest on the top plates of the story below (or on the foundation sill for the first story) and the bearing walls and partitions rest on the subfloor of each story.

Frieze – In house construction, a horizontal member connecting the top of the siding with the soffit of the cornice.

Frost line – The depth of frost penetration in soil and/or the depth at which the earth will freeze and swell. This depth varies in different parts of the country.

Furring strips – Strips of wood, often 1 by 2 inches and used to shim out and provide a level fastening surface for a wall or ceiling.

Fuse – A device often found in older homes designed to prevent overloads in electrical lines. This protects against fire. See also “circuit breaker.”

G

Gable – The generally triangular section of wall at the end of a pitched roof, occupying the space between the two slopes of the roof.

General contractor – A contractor who enters into a contract with the owner of a project for the construction of the entire project and who takes full responsibility for its completion. The general contractor may enter into subcontracts with other sub-contractors for the performance of specific parts or phases of the project.

Girder – A large or principal beam of wood or steel used to support concentrated loads at isolated points along its length.

Glazing – The process of installing glass, which commonly is secured with glazier's points and glazing compound.

Gloss enamel – A finishing paint material. Forms a hard coating with maximum smoothness of surface and dries to a sheen or luster.

Glued laminated beam (Glulam) – A structural beam composed of wood laminations or lams. The lams are pressure bonded with adhesives to attain a typical thickness of 1 inch.

Grade – 1) Ground level, or the elevation at any given point. 2) the work of leveling dirt. 3) The designated quality of a manufactured piece of wood.

Grain – The direction, size, arrangement, appearance, or quality of the fibers in wood.

Ground Fault Current Interrupter (GFI or GFCI) – An electrical device designed to shut off all electric current. Used to prevent injury from contact with electrical appliances. Required in new homes in bathrooms, kitchen, garage, exterior waterproof outlets and in other locations where one might come into contact with a grounded surface and an electrical appliance, simultaneously. Most GFI's are located in the electrical receptacle itself and can be identified by the presence of a test/reset button on the outlet.

Grout – A wet mixture of cement, sand and water that flows into masonry or ceramic crevices to seal the cracks between the different pieces. Mortar made of such consistency (by adding water) that it will

flow into the joints and cavities of the masonry work and fill them completely.

Gutter – A shallow channel or conduit of metal or wood set below and along the (fascia) eaves of a house to catch and carry off rainwater from the roof.

Gyp board – See drywall.

Gypsum plaster – Gypsum formulated to be used with the addition of sand and water for base-coat plaster.

H

Hardware – All of the fixtures (typically metal) that are installed in a home when it is near completion. For example, door knobs, towel bars, handrail brackets, closet rods, house numbers, door closers, etc. An interior trim carpenter installs hardware.

Header – 1) A beam placed perpendicular to joists and to which joists are nailed in framing for a chimney, stairway, or other opening. 2) A wood lintel. 3) The horizontal structural member over an opening (for example over a door or window).

Hearth – The fireproof area directly in front of a fireplace. The inner or outer floor of a fireplace, usually made of brick, tile, or stone.

Heating load – The amount of heating required to keep a building at a specified temperature during the winter, usually 65° F, regardless of outside temperature.

Heat pump – A device which uses compression and decompression of gas to heat and/or cool a house.

Hip – A roof with four sloping sides. The external angle formed by the meeting of two sloping sides of a roof.

Hip roof – A roof that rises by inclined planes from all four sides of a building.

HOA (Home owners association) – A non-profit neighborhood association that is responsible for common areas and helps maintain residence compliance with neighborhood codes, covenants and regulations (CCRs).

Home run (electrical) – The electrical cable that carries power from the main circuit breaker panel to the first electrical box, plug, or switch in the circuit.

Hose bib – An exterior water faucet.

Hot water heating – See also “hydronic heating.”

Humidifier – An appliance attached to the furnace (also commonly a stand-alone device) to increase the humidity within a room or a house by means of the discharge of water vapor.

Hurricane clip – Metal straps that secure the roof rafters and trusses to the top horizontal wall plate. Sometimes called a Teco clip.

HVAC – An abbreviation for heating, ventilation, and air conditioning.

Hydronic heating – A heating system that uses various types of fuel to heat water which is then distributed through pipes to radiators located in various portions of the house.

I

I-beam – A steel beam with a cross section resembling the letter I. It is used for long spans as basement beams or over wide wall openings, such as a double garage door, when wall and roof loads are imposed on the opening.

I-joist – See TJI.

Ice dams – A condition which can occur during winter with snow and freezing conditions. When snow or ice melts on a roof over a heated

or partially heated attic space, the melting water may refreeze over an unheated area such as a roof overhang. This re-frozen water may create a blockage or dam, forcing additional melt water to back up under shingles, causing leaks. Solutions include: proper roof venting and adequate insulation.

Incandescent lamp – A lamp employing an electrically charged metal filament that glows from white heat. Otherwise known as a traditional light bulb.

Infiltration – The passage of air from indoors to outdoors and vice versa. Term is usually associated with drafts from cracks, seams or holes in buildings.

Inside corner – The point at which two walls form an internal angle, as in the corner of a room.

Insulating glass – Window or door in which an air space is sealed between two panes of glass. Also known as double-pane glass.

Insulation board, rigid – A structural building board made of coarse wood or cane fiber. Available in 25- and 32-inch thicknesses, in various sized sheets and densities.

Insulation – Any material high in resistance to heat transmission that, when placed in the walls, ceiling, or floors of a structure, will reduce the rate of heat flow.

Interior finish – Material used to cover the interior framed areas of walls and ceilings

J

Jamb – The side and head lining of a doorway, window, or other opening. Includes studs as well as the frame and trim.

Joint – The location between the touching surfaces of two members or components joined and held together by nails, glue, cement, mortar, or other means.

Joists – A framing member, often a 2 by 10 inch piece of lumber, which is usually spaced every 16 to 24 inches and supports the sub-floor and flooring. The joist typically is placed on a load bearing wall or beam.

Joist hanger – A metal "U" shaped element used to support the end of a floor joist and attached with hardened nails to another bearing joist or beam.

K

Kiln-dried lumber – Lumber that has been dried in a kiln, often to a moisture content of 6 to 12 percent. Common varieties of softwood lumber, such as framing lumber are dried to a somewhat higher moisture content.

Kilowatt (kw) – One thousand watts. A kilowatt hour is the base unit used in measuring electrical consumption. Also see Watt.

King stud – The vertical frame lumber (left and right) of a window or door opening that runs continuously from the bottom sole plate to the top plate.

L

Landing – A platform between flights of stairs or at the end of a flight of stairs. Often used when stairs change direction. Normally no less than 3 x 3 feet square.

Lath and plaster – The most common wall finish prior to the introduction of drywall. Thin wood strips, known as lath, were nailed onto the framing as a base for the sand/lime plaster.

Ledger (for a structural floor) – The wooden perimeter frame member that bolts onto the face of a foundation wall and supports the wood structural floor.

Ledger strip – A strip of lumber nailed along the bottom of the side of a girder on which joists rest.

Leech field – A method used to treat/dispose of sewage in rural areas where there is no municipal sewer system access. Sewage is

permitted to be filtered and eventually discharged into a section of the lot called a leech field.

Let-in brace – 1) Nominal 1-inch-thick boards applied into notched studs diagonally. 2) Long, L-shaped metal strap that is installed by the framer, at the rough stage, to give support to an exterior wall or wall corner.

Level – True horizontal. Also a tool used to determine level.

Lien – A legal claim on a tract of real estate which grants the lien holder a specified amount of money upon sale of the property. Liens are used to ensure the payment of a debt, with the property acting as collateral against the amount owed. A mortgage or a deed of trust are examples of property liens.

Light – Space in a window sash for a single pane of glass. Also, a pane of glass.

Limit switch – A safety control that automatically shuts off a furnace if it gets too hot. Most also control blower cycles.

Lineal foot – A unit of measure for lumber equal to 1 inch thick by 12 inches wide by 12 inches long. Examples: 1" x 12" x 16' = 16 board feet, 2" x 12" x 16' = 32 board feet.

Lintel – A horizontal structural member that supports the load over an opening such as a door or window.

Load-bearing wall – A wall that supports its own weight as well as other structural elements of the house, such as the joists.

Louver – A vented opening into the home that has a series of horizontal slats, arranged to permit ventilation but to exclude rain, snow, light, insects, or other living creatures.

Lumber – A wood product that has not been further manufactured than being sawed, re-sawed, passed lengthwise through a standard planing machine, crosscut to length, and then matched.

Lumber, dressed size – The dimension of lumber after shrinking from its natural/raw dimension and after machining to size or pattern.

Lumens – Unit of measure for total light output. The amount of light falling on a surface of one square foot.

M

Mantel – The shelf above a fireplace opening. Also used in referring to the decorative trim around a fireplace opening.

Manufactured wood – A wood product such as a truss, beam, Glulam™ or joist that is manufactured out of smaller wood pieces and glued or mechanically fastened to form a larger piece. It is often used to create a stronger member that may use less wood. See also “oriented strand board.”

Manufacturers specifications – The written installation and/or maintenance instructions, developed by a product manufacturer, which may have to be followed in order to preserve the product warranty.

Masonry – Stone, brick, concrete, hollow-tile, concrete block, or other similar building units or materials. Normally bonded together with mortar to form a wall.

Massing – Assemblage of shapes and forms to develop an appropriate appearance.

Mastic – A pasty material used as a cement (as for setting tile) or a protective coating (as for thermal insulation or waterproofing).

Mechanics lien – A lien on real property in favor of persons supplying labor or materials for a building or structure, for the value of labor or materials supplied by them. In some jurisdictions, a mechanics lien also exists for the value of professional services. Clear title to the property cannot be obtained until the claim for the labor, materials, or professional services is settled.

Millwork – Generally all building materials that are made of finished wood and manufactured in millwork plants. Includes doors, window and door frames, blinds, mantels, panelwork, stairway components (ballusters, rails, etc.), moldings, and interior trim. Does not include flooring, ceiling, or siding.

Miter joint – The joint of two pieces at an angle that bisects the joining angle. For example, the miter joint at the side and head casing at a door opening is made at a 45° angle.

Modified bitumen roof – See torch down roof.

Mold – A type of fungus that thrives in moist environments, including bathrooms, basements, and attics. Certain types of mold can pose a serious human health hazard especially to allergy and asthma sufferers. When mold is found, it should be addressed immediately because it will spread fast. At only the slightest disturbance or agitation mold spores can travel through the air and spread to other areas of the home. For severe cases of mold, it is advisable to call in a mold abatement professional, who will seal off affected areas of the house so that mold spores do not spread during abatement.

Molding or Moulding – A wood strip having a carved, decorative surface.

Monopost – An adjustable metal column used to support a beam or bearing point.

Mortar – A mixture of cement (or lime) with sand and water. Used in masonry work.

Mullion – A vertical divider in the frame between windows, doors, or other openings.

Muntin – A small member which divides the glass or openings of sashes or doors.

N

Newel post – The large starting post to which the end of a stair guard railing or balustrade is fastened.

Non-bearing wall – A wall supporting no load other than its own weight.

Nosing – The projecting edge of a molding or drip or the front edge of a stair tread.

O

OC (on center) – The measurement of spacing for studs, rafters, joists, and the like in a building from the center of one member to the center of the next.

OG (or ogee) – A molding with a profile in the form of a letter S; having the outline of a reversed curve.

Oriented strand board (OSB) – Also known as chip board or wafer board. A manufactured wood panel composed of 1- and 2-inch wood chips and glue. It is often incorrectly used as a substitute for plywood.

Outrigger – An extension of a rafter beyond the wall line. Usually a smaller member nailed to a larger rafter to form a cornice or roof overhang.

Outside corner – The point at which two walls form an external angle.

Overhang – Outward projecting eave/soffit area of a roof. The part of the roof that hangs out or over the outside wall. See also Cornice.

P

Padding – A material installed under a carpet to add comfort, isolate sound, and to prolong the life of the carpet.

Paint – A combination of pigments with suitable thinners or oils to provide decorative and protective coatings. Can be oil-, latex-, or water-based.

Panel – A thin flat piece of wood, plywood, or similar material, framed by stiles and rails as in a door (or cabinet door), or fitted into

grooves of thicker material with molded edges for decorative wall treatment.

Paper, building – A general term for papers, felts, and similar sheet materials used in buildings without reference to their properties or uses. Generally comes in long rolls.

Paper, sheathing – A building material, generally paper or felt, used in wall and roof construction as a protection against the passage of air and sometimes moisture.

Particle board – Plywood substitute made of course sawdust that is mixed with resin and pressed into sheets. Used for closet shelving, floor underlayment, stair treads, etc.

Partition – A wall that subdivides spaces within any story of a building or room.

Paver – Material (commonly stone or brick) laid down to make a firm, even surface. Many pavers are installed beside one another to form outdoor walkways or paths, for example.

Payment schedule – A schedule of payments to a contractor agreed upon in advance and usually based upon the amount of work completed. Such a schedule may include a deposit prior to the start of work. Payments are often scheduled for the beginning of the month to allow the contractor to distribute money to the sub-contractors and suppliers by the 10th of the month. The schedule may also include a temporary holdout at the end of the contract for any small items which have not been completed.

Percolation (or perc test) – A test to determine if the soil on a proposed building lot is capable of absorbing the liquid effluent from a septic system.

Permeability – A measure of the ease with which water penetrates a material.

Permit – A governmental authorization to perform a building process. These may include:

- Zoning/Use permit – authorization to use a property for a specific use (i.e. a factory, a single-family residence, etc.)
- Grading permit – authorization to change the contour of the land.
- Septic permit – a health department authorization to build or modify a septic system.
- Building permit – authorization to build or modify a structure.
- Electrical permit – a separate permit required for most electrical work.
- Plumbing permit – a separate permit required for new plumbing and larger modifications of existing plumbing systems.

Pier – A column of masonry, usually has a rectangular horizontal cross section, used to support other structural members. Also see Caisson.

Pitch – The inclined slope of a roof or the ratio of the total rise to the total width of a house. Roof slope is expressed in the inches of rise per foot of run. For example, an 8-foot rise and 24-foot width is a 1/3 pitch roof.

Plans – See blue prints.

Plate – Sill plate: a horizontal member anchored to a masonry wall. Sole plate: bottom horizontal member of a frame wall. Top plate: top horizontal member of a frame wall supporting ceiling joists, rafters, or other members.

Plenum – The main hot-air supply duct leading from a furnace.

Plot plan – An overhead view plan that shows the location of the home on the lot. Includes all easements, property lines, set-backs, and legal descriptions of the home. Provided by the surveyor.

Plumb – Exactly vertical and perpendicular.

Plumbing rough – Work performed by the plumbing contractor after the rough heat is installed. This work includes installing all plastic ABS drain and waste lines, copper water lines, bath tubs, shower pans, and gas piping to furnaces and fireplaces. Lead solder should not be used on copper piping.

Plumbing stack – A plumbing vent pipe that penetrates the roof.

Plumbing trim – Work performed by the plumbing contractor to ready the home for a final plumbing inspection. Includes installing all toilets (water closets), hot water heaters, and sinks; and connecting all gas pipes to appliances, disposal, dishwasher, and all plumbing items.

Plumbing waste line – Plastic pipe used to collect and drain sewage waste.

Ply – A term to denote the number of layers in any finished piece of material (such as roofing felt, veneer in plywood, or layers in other built-up materials).

Plywood – A panel (normally 4' x 8') made of three or more layers of wood veneer, compressed and joined with glue. Layers are usually assembled with the grain at right angles to one another, in order to add strength to the panel.

Polybutylene – A type of plastic, commonly gray in color. Often used in pipes for domestic water supply systems. Some polybutylene plumbing systems have been recalled due to a history of leaks and failure.

Polyisocyanurate foam – A rigid foam board insulation often used in areas where there is not enough room for standard batt insulation. Insulation is one of the least expensive ways to reduce energy consumption.

Post – A vertical framing member usually designed to carry a beam. Often a 4- by 4-inch or 6- by 6-inch piece of wood, or a metal pipe with a flat plate on top and bottom.

Pressure relief valve – A device mounted on a hot water heater or boiler designed to release high steam pressure in the tank and thus prevent tank explosions.

Pressure-treated wood – Lumber that has been saturated with one or more chemical preservatives to guard against decay.

Primer – A base-coat that is applied first, to prepare a surface for painting. Primer is like paint, but contains no colored pigments. It is formulated to seal raw surfaces and to bond with the layer of paint that will be applied on top of the primer.

Property survey – A survey to determine the official, legal boundaries of a property. Cost depends on the complexity of the survey.

Property inspections and reports – A limited visual inspection to identify the general features and major deficiencies of a property. Any area that is not exposed to view, is concealed, or is inaccessible will not be included in the inspection.

Proposal – A written offer from a bidder to the owner, preferably on a prescribed proposal form, to perform the work and to furnish all labor, materials, equipment and/or services for the prices and terms quoted by the bidder.

Purchase order – A written contract, from a buyer to a seller, for purchase of materials, services, equipment or supplies with acceptable purchase terms indicated.

P-trap – Curved, U-shaped section of drain pipe that holds a water seal. Used to prevent sewer gasses from entering the home through pipes or plumbing fixtures.

Punch list – A list of discrepancies that need to be corrected by the contractor.

Punch out – To inspect and make a discrepancy list.

Putty – A pliable material used to seal holes, cracks and crevices in various materials. Used to seal glass in the sash and for similar purposes.

PVC (polyvinyl chloride) – A type of plastic, white in color. Pipes used for water supply lines are often made of this material.

Q

Quarry tile – A man-made or machine-made clay tile used to finish a floor or wall. Generally 6 by 6 inches and ¼ inch thick.

Quarter round – A small trim molding that has the cross section of a quarter circle.

R

Radiant heat – A heating system utilizing hot water, steam pipes, or electric resistance coils to heat the floors, walls or the ceiling of a room.

Radon – A naturally-occurring but hazardous radio-active gas. Often associated with lung cancer. Mitigation measures may involve crawl space and basement venting and various forms of vapor barriers.

Rake – Slope or slant.

Rake fascia – The vertical face of the sloping end of a roof eave.

Rafter – The framing member directly supporting the roof sheathing. A rafter usually follows the angle of the roof and may be a part of a roof truss.

Ready-mixed concrete – Concrete mixed at a plant or in trucks en route to a job and delivered ready for placement.

Rebar, reinforcing bar – Ribbed, cylindrical steel bars installed in concrete walls, footers, and other poured-in-place concrete structures. Designed to strengthen concrete. Available in various thicknesses and strength grades.

Receptacle – An electrical outlet. A typical household will have many 120 volt receptacles for plugging in lamps and appliances as well as

240 volt receptacles for clothes dryers, air conditioners, kitchen ranges, etc.

Register – A grill placed over a heating duct or cold air return.

Reglaze – To replace a broken window.

Release of lien – A written action properly executed by an individual or firm supplying labor, materials or professional services on a project which releases his/her mechanic's lien against the property on which the labor has been performed.

Relief valve – A device designed to open if it detects excess temperature or pressure.

Remote meter – Utility (electric or gas) metering system which sends household utility usage levels to the utility company remotely, via radio frequency transmission or power line transmission. A home will typically have a meter box, located at the front of the home, to send these transmissions to the utility company.

Retaining wall – A structure that holds back a slope of soil and prevents erosion.

Retentions – Amounts withheld from progress billings until final and satisfactory project completion.

Retrofit – Modification of an existing building or facility to include new systems or components.

R-factor (or R-value) – The measure of a material's resistance to the passage of heat. In new homes, walls are usually insulated with 4 inches of batt insulation that has an R-value of R-13; ceiling insulation has a value of R-30.

Ribbon (girt) – Normally a 1 by 4 inch board let into the studs horizontally to support the ceiling or second-floor joists.

Ridge – The horizontal line at the junction of the top edges of two sloping roof surfaces.

Ridge board – The board placed on the ridge of the roof onto which the upper ends of other rafters are fastened.

Ridge shingles – Shingles used to cover the ridge board.

Rim joist – A joist that runs around the perimeter of the floor joists and home.

Rise – The vertical distance from the eaves line to the ridge. Also the vertical distance from stair tread to stair tread (should not exceed 7 inches).

Riser – The board between one stair tread and the next – the upright section of a stair.

Roll roofing – Roofing material that is supplied in 36-inch wide rolls (108 total square feet of material), weighing about 45 to 90 pounds per roll. Roll roofing tends to be less expensive, and may be more convenient, and easier to install than other roofing materials.

However it can be more delicate and have a shorter useful lifespan than other material choices.

Romex® – A name brand of nonmetallic sheathed electrical cable that is used for indoor wiring.

Roof certification – A written opinion, given by a roofing contractor or inspector, estimating the remaining useful life of a roof system. Under certain circumstances a financial institution may request a "roof cert" for a property prior to issuing a mortgage. This should not be confused with a roofing material or workmanship guarantee, or warrantee.

Roof jack – Sleeves that fit around black plumbing waste vent pipes at the roof sheeting and are nailed to the sheeting.

Roof joist – The rafters of a flat roof. Lumber used to support the roof sheeting and roof loads. Generally, 2 x 10 inch and 2 x 12 inch boards are used.

Roof sheathing or sheeting – The wood panels or sheet material fastened to the roof rafters or trusses on which the shingle or other roof covering is laid.

Roof valley – The "V" created where two sloping roofs meet.

Rough opening – The horizontal and vertical measurement of a window or door opening before drywall or siding is installed.

Rough sill – The framing member at the bottom of a rough opening for a window. It is attached to the cripple studs below the rough opening.

Roughing-in – The initial stage of a plumbing, electrical, heating, carpentry, and/or other project, when all components that won't be seen after the second finishing phase are assembled. See also "heat rough," "plumbing rough," and "electrical rough."

Run, roof – The horizontal distance from the eaves to a point directly under the ridge.

Run, stair – The horizontal distance of a stair tread from the nose to the riser.

R-value – See R-factor.

S

Saddle – Two sloping surfaces meeting in a horizontal ridge. Used between the rear face of a chimney, or other vertical surface, and a sloping roof.

Sanitary sewer – A sewer system designed for the collection of waste water from the bathroom, kitchen and laundry drains. It is usually not designed to handle storm water.

Sash – The frame that holds the glass in a window, often the movable part of the window. See also “double-hung windows,” and “casement windows.”

Scratch coat – The first coat of plaster, which is scratched to form a bond for the second coat.

Scupper – The drain in a downspout or flat roof.

Sealer – A finishing liquid, either clear or pigmented, that is usually applied directly over raw wood for the purpose of sealing the wood surface.

Semi-gloss paint or enamel – A paint or enamel made so that its coating, when dry, has some luster but is not very glossy. Bathrooms and kitchens are normally painted with semi-gloss paint.

Septic system – An on-site wastewater treatment system used in cases where it is not feasible to connect the sewer system of a property to an existing municipal sewer system. Consists of a septic tank, which promotes the biological digestion of the waste, and a drain field, which facilitates the left-over liquid in soaking into the ground. The number of bedrooms in a house determines the size of septic systems and affects septic system permits.

Service entrance panel – Main power cabinet where electricity enters a home wiring system.

Sewer lateral (or side sewer) – The portion of the sanitary sewer which connects the interior waste water lines to the main sewer lines.

The side sewer is usually buried in several feet of soil and runs from the house to the sewer line. The sewer lateral is usually the property of the sewer utility, must be maintained by the owner, and may only be serviced by utility-approved contractors.

Sewer tap – The physical connection point where the sewer line of the home connects to the municipal sewer line.

Shake – A wooden roofing product, usually composed of cedar, which is produced by splitting a block of the wood along the grain line. Modern shakes are sometimes machine sawed on one side.

Sheathing – The plywood, board, OSB or other material used as the base for the roofing.

Sheet metal work – All components of a house employing sheet metal, such as flashing, gutters, and downspouts.

Sheet metal duct work – The main infrastructure of a home heating system. Usually round or rectangular metal pipes and sheet metal (for return air), and installed for the purposes of distributing warm (or cold) air from the furnace to rooms in the home.

Sheet rock (also drywall, wall board or gypsum) – A manufactured panel made out of gypsum plaster and encased in a thin cardboard. Usually ½ inch thick and 4 x 8 feet or 4 x 12 feet in size. “Green board” type drywall has a greater resistance to moisture than regular (white) plasterboard and is used in bathrooms and other moisture-intensive areas.

Shingle – A thin oblong piece of material, such as wood or slate, that is laid in overlapping rows to cover the roof or sides of a house or other building.

Shingles, three-dimensional (or architectural shingles) – Laminated shingles. Shingles that have added dimensionality because of extra layers or tabs, giving a shake-like appearance.

Shutter – Usually lightweight louvered decorative frames in the form of doors, located on the sides of a window. Some shutters are made to close over the window for protection.

Siding – The finished exterior covering of the outside walls of a frame building.

Siding, lap – Slightly wedge-shaped boards used as horizontal siding in a lapped pattern over the exterior sheathing. Varies in thickness with widths up to 12 inches.

Sill – 1) The 2x4 or 2x6 wood plate framing member that lays flat against, and bolted to, the foundation wall (with anchor bolts) and upon which the floor joists are installed. Normally the sill plate is comprised of treated lumber. 2) The member forming the lower side of an opening, as a door sill or window sill.

Sill cock – An exterior water faucet (hose bib).

Single hung window – A window with one vertically sliding sash or window vent.

Single-ply roof – See torch down roof.

Skylight – A more or less horizontal window located on the roof of a building.

Slab, concrete – Area of concrete pavement (i.e. driveways, garages, and basement floors).

Slab, door – A rectangular door without hinges or frame.

Slab on grade – A type of foundation with a concrete floor placed directly on the soil. The edge of the slab is usually thicker and acts as the footing for the walls.

Slag – Concrete cement that sometimes covers the vertical face of the foundation void material.

Sleeper – Usually, a wood member embedded in concrete, as in a floor, that serves to support and to fasten the subfloor or flooring.

Soffit – A small ceiling-like space, often on the exterior of a building, such as the underside of a roof overhang.

Soil stack – A plumbing vent pipe that penetrates the roof.

Sole plate – The bottom, horizontal framing member of a wall that is attached to the floor sheathing and vertical wall studs.

Solid bridging – A solid member placed between adjacent floor joists near the center of the span to prevent joists or rafters from twisting.

Sound attenuation – Sound proofing a wall or subfloor, generally with fiberglass insulation.

Space heat – Heat supplied to the living space/rooms of a building.

Spacing – The distance between individual members or shingles in building construction.

Span – The clear distance across which a framing member carries a load, between structural supports. The horizontal distance from eave to eave.

Specifications or specs. – A list of materials, methods, model numbers, colors, allowances, and other details which supplement a blue print.

Splash block – A pad placed under the lower end of a downspout and diverts the water from the downspout away from the house. Usually made out of concrete or fiberglass.

Square – 1) A unit of measure (100 square feet) usually applied to roofing and siding material. 2) A situation that exists when two elements are at perfect right angles to each other. 3) A tool for measuring the right angle between two elements.

Starter strip – Asphalt roofing, applied at the eaves, which provides protection by filling in the spaces under the cutouts and joints of the first course of shingles.

Stair carriage or stringer – Supporting member for stair treads. Usually a 2 by 12 inch plank notched to receive the treads. Sometimes called a "rough horse."

Stair landing – A platform between flights of stairs or at the termination of a flight of stairs. Often used when stairs change direction. Normally no less than 3 by 3 feet square.

Stair rise – The vertical distance from stair tread to stair tread (should not exceed 7 inches).

Static vent – A vent that does not include a fan.

Sound transmission class (STC) – The measure of sound stopping of ordinary noise.

Step flashing – Flashing application method used where a vertical surface meets a sloping roof plane. 6- by 6-inch galvanized metal bent at a 90 degree angle, and installed beneath siding and over the top of shingles. Each piece overlaps the one beneath it, the entire length of the sloping roof (step by step).

Stick built – A house built without prefabricated parts. Also called "conventional building."

Stile – An upright framing member in a panel door.

Stool – 1) The flat molding fitted over the window sill between jambs and contacting the bottom rail of the lower sash. 2) Another name for a toilet.

Stop order – A formal, written notification to a contractor to discontinue some or all work on a project for reasons such as safety violations, defective materials or workmanship, or cancellation of the contract.

Stops – Moldings along the inner edges of a door or window frame.

Stop valve – A device installed in a water supply line, usually near a fixture, that permits an individual to shut off the water supply to one fixture without interrupting service to the rest of the system.

Storm sash or storm window – An extra window, usually placed outside of an existing one, for additional protection against cold weather.

Storm sewer – A sewer system designed to collect storm water and is separated from the waste water system.

Story – The portion of a building between any two floors or between the floor and roof.

Strike – The plate on a door frame that engages a latch or dead bolt.

Structural floor – A framed lumber floor that is installed as a basement floor instead of concrete. This method is used when a site has very expansive soils.

Stucco – A plaster finish, made with Portland cement as its base, that can be applied to the exterior of a home as an alternative to siding, or

can be applied to the interior walls of a home for decorative purposes.

Stud – A vertical wood framing member, also referred to as a “wall stud,” attached to the horizontal sole plate below and the top plate above. Normally 2x4 or 2x6 inches and 8 feet long (sometimes 92 5/8 inches). One of a series of wood or metal vertical structural members placed as supporting elements in walls and partitions.

Stud framing – A building method that distributes structural loads to each of a series of relatively lightweight studs. Contrasts with post-and-beam framing.

Subfloor – The framing components of a floor that include the sill plate, floor joists, and deck sheeting, over which a finish floor is to be laid.

Sump – Pit or large plastic bucket/barrel inside the home designed to collect ground water from a perimeter drain system.

Sump pump – A submersible pump in a sump pit that pumps any excess ground water to the outside of the home.

Suspended ceiling – A ceiling system supported by hanging it from the overhead structural framing.

Switch – A device that completes or disconnects an electrical circuit.

I

Tab – The exposed portion of strip shingles defined by cutouts.

Tee – A T-shaped plumbing fitting.

Tempered – Strengthened. Tempered glass will not shatter nor create shards, but will form pellet-sized pieces when broken (like an automobile window. Required in tub and shower enclosures, entry door glass, sidelight glass, and in windows where the sill is situated less than 16 inches away from the floor.

Termites – Wood eating insects that resemble ants in size and general appearance. Termites can cause damage to wooden structures or the wood components within a structure.

Termite shield – A shield, usually of galvanized metal, placed in or on a foundation wall or around pipes to prevent the passage of termites.

Thermostat – A device that relegates the temperature of a room or building by switching heating or cooling equipment on or off.

Threshold – The bottom metal or wood plate of an exterior door frame. Generally they are adjustable to keep a tight fit with the door slab.

TJI (or TJ) – Manufactured structural building component resembling the letter "I." Used as floor joists and rafters. I-joists include two key

parts: flanges and webs. The flange, or form, of the I-joist may be made of laminated veneer lumber or dimensional lumber, usually formed into a 1" width. The web or center of the I-joist is commonly made of plywood or oriented strand board (OSB). Large holes can be cut in the web to accommodate duct work and plumbing waste lines. I-joists are available in lengths up to 60" long.

Toenailing – To drive a nail in at a slant. Method used to secure floor joists to the plate.

Tongue and groove – A joint made by a tongue (a rib on one edge of a board) that fits into a corresponding groove in the edge of another board. Used to make a tight flush joint. Typically, the subfloor plywood is tongue and groove.

Top chord – The upper or top member of a truss.

Top plate – Top horizontal member of a frame wall supporting ceiling joists, rafters, or other members.

Torch down roof – Also called single-ply or modified bitumen. A newer roofing material used primarily on flat roofs. This material usually comes in rolls and is applied to the roof with an open flame or torch.

Transmitter, garage door – The small, push button device that triggers the garage door to open or close.

Trap – A plumbing fitting that holds water to prevent air, gas, and vermin from backing up into a fixture.

Tread – The walking surface board in a stairway on which the foot is placed.

Treated lumber – A wood product impregnated with chemicals to reduce damage from wood rot or insects. Often used for the portions of a structure likely to be in ongoing contact with soil and water such as a deck. Wood may also be treated with a fire retardant.

Trim (plumbing, heating, electrical) – The work that the mechanical contractors perform to finish their respective aspects of work. Performed when the home is nearing completion and occupancy.

Trim, exterior – The finish materials on the exterior a building, such as moldings applied around openings (window trim, door trim), siding, windows, exterior doors, attic vents, crawl space vents, shutters, etc. Also, the physical work of installing these materials.

Trim, interior – The finish materials in a building, such as moldings applied around openings (window trim, door trim) or at the floor and ceiling of rooms (baseboard, cornice, and other moldings). Also, the physical work of installing interior doors and interior woodwork, to include all handrails, guardrails, stair way balustrades, mantles, light boxes, base, door casings, cabinets, countertops, shelves, window sills and aprons, etc.

Truss – A manufactured wood member often in the form of a large triangle used to form the ceiling joists and rafters on the top floor of a home.

Turnkey – A term used when the subcontractor provides all materials (and labor) for a job.

U

Underwriters Laboratories (UL) – An independent testing agency that checks electrical devices and other components for possible safety hazards.

Underlayment – A material placed over the subfloor plywood sheathing and under finish coverings, such as vinyl flooring, to provide a smooth, even surface. Also a secondary roofing layer that is waterproof or water-resistant, installed on the roof deck and beneath shingles or other roof-finishing layer.

Union – A plumbing fitting that joins pipes end-to-end so they can be dismantled.

Unit price contract – A written contract wherein the owner agrees to pay the contractor a specified amount of money for each unit of work successfully completed, as set forth in the contract.

Unit prices – A predetermined price for a measurement or quantity of work to be performed within a specific contract. The designated unit price would include all labor materials, equipment or services associated with the measurement or quantity established.

Utility easement – A designated ground area that has electric, gas, or telephone lines. These areas may be owned by the homeowner, but the utility company has the legal right to enter the area, as necessary, to repair or service the lines.

UURHOT – An unused underground residential heating oil tank. Usually found in homes that were once heated with oil.

V

Valley – The V-shaped area of a roof where two sloping roofs meet. Water drains off the roof at the valleys.

Valley flashing – Sheet metal that lays in the "V" area of a roof valley.

Vapor barrier – A building product installed on exterior walls and ceilings under the drywall and on the warm side of the insulation. It is used to retard the movement of water vapor into walls and prevent condensation within them. Polyethylene plastic sheeting is commonly used as a vapor barrier.

Verbal quotation – A written document used by the contractor to receive a subcontract or material cost proposal over the telephone, prior to the subcontractor or supplier sending their written proposal via mail or facsimile.

Vendor – One that sells materials or equipment not fabricated to a special design.

Veneer – Extremely thin sheets of wood. Also a thin slice of wood, brick or stone covering a framed wall.

Vent – A pipe or duct which allows the flow of air and gasses to the outside. Also, another word for the moving glass part of a window sash, i.e. window vent.

Vermiculite – A mineral used as bulk insulation and also as aggregate in insulating and acoustical plaster and in insulating concrete floors.

Visqueen – A type of plastic sheeting with a thickness of 4 to 6 mils.

Voltage – A measure of electrical potential. Most homes are wired with 110 and 220 volt lines. The 110 volt power is used for lighting and most of the other circuits. The 220 volt power is usually used for the kitchen stove, water heater and dryer.

W

Wafer board – See oriented strand board.

Walk-through – A final inspection of a home before "closing" to look for and document problems that need to be corrected.

Warrantee (or Warranty) – In construction there are two general types of warrantees. The manufacturer of a product, such as roofing material or an appliance, provides one type. The second type is a

warranty for the labor. For example, a roofing contract may include a 30-year material warranty and a 5-year labor warranty. Many, but not all new homes come with a one year warranty.

Waste pipe and vent – Plastic plumbing pipe that carries waste water to the municipal sewer system.

Water closet – Another name for toilet.

Water-proofing – Describes making an object water-proof or water-resistant. In construction, a building or structure becomes water-proof through the application of membranes (available in a variety of materials) to protect contents underneath. A key factor in water-proofing is the quality of the application process, not just the water-proof membrane itself.

Water table –

1. A projecting ledge, molding, or a decorative, horizontal course of brick or stone set in the side of a building, designed to throw off rainwater.
2. The surface of a body of underground water below which the soil or rocks are completely saturated with water. The water table separates the groundwater zone (zone of saturation) that lies below it from the zone of aeration that lies above it. The water table fluctuates and is affected by the seasons, climatic variations, precipitation and other factors. Also known as groundwater level.

Water tap – The connection point where the home water line connects to a municipal water main.

Watt – A unit measure of electrical power. The electrical requirement of an appliance is measured in watts.

WC – An abbreviation for water closet (toilet).

Weatherization – Work on the exterior of a building in order to reduce energy consumption for heating or cooling. Examples of work that could be undertaken to weatherize a home include: caulking cracks, and installing insulation, storm windows, doors, or weather-stripping.

Weatherstrip – Narrow sections of thin metal or other material installed to prevent the infiltration of air and moisture around windows and doors.

Weep holes – Small holes in storm window frames that allow moisture to escape.

Window frame – The stationary part of a window unit. A window sash fits into the window frame.

Window sash – The operating or movable part of a window. The sash is made of window panes and their border.

Wire nut (or twist-on wire connector) – A thimble-shaped piece of plastic used to connect bare wires together.

WonderBoard – See “cement board.”

Work – The successful performance of the entire scope of the project being performed for a specific construction project including labor, materials, equipment, and other associated items necessary to fulfill all obligations under the contract.

Working drawing – A drawing sufficiently complete with plan and section views, dimensions, details, and notes so that whatever is shown can be constructed and/or replicated without instructions but subject to clarifications.

Work order – A written direction for a contractor to complete a specific or general task, associated with a project that is already under contract. Work orders are authorized/signed by the property owner or his/her representative. Unlike the contract, there is no negotiation involved in the issuing or carrying out of a work order.

Y

Yard of concrete – One cubic yard of concrete is 3x3x3 feet in volume, or 27 cubic feet. One cubic yard of concrete will pour 80 square feet of 3-inch-thick sidewalk or basement/garage floor.

Z

Z-bar flashing – Bent, galvanized metal flashing that is installed above a horizontal trim board of an exterior window, door, or brick run. It prevents water from entering behind the trim/brick and into the home.

Zone – 1) The section of a building that is served by one heating or cooling loop because it has noticeably distinct heating or cooling needs. 2) The section of a property that will be watered from a lawn sprinkler system.

Zoning – A governmental process of planning for future land use. Zoning classifications define which types of land uses and structures are allowable on any given parcel of land within a city or county. Zoning codes also regulate specific features of land use such as the height of buildings, conservation of green space, residential density, types of businesses that are permitted, etc.

Zoning permit – A document issued by a governing urban authority permitting land to be used for a specific purpose.

Glossary of Architectural Features

Arches – are used to support wall openings for windows, doorways, and porticos. Before the arch was invented, a straight lintel, or beam, made of heavy stone or wood was the only way to support an opening in a wall. Arches allow for larger openings that let in more air and light. The keystone is the large wedge-shaped stone at the top of some arches that holds the other stones in place. The voussoirs are the wedge-shaped stones surrounding the keystone.



Flat

Flat arches are either level or have a slight curve. This arch has supportive voussoirs, which are wedge-shaped stones or bricks.



Gothic

Gothic arches, also called pointed arches, are narrow and pointed at the top. They were seen during the Gothic period in Europe from about middle 12th century to the 16th century. In the late 19th and early 20th centuries in America, a Gothic Revival style incorporated these pointed arches into homes and buildings.



Moorish

Moorish arches, also called Horseshoe Arches, have an exotic shape. They are most likely to be seen on commercial buildings such as theaters. A Moorish Revival style of the early 20th century in America reintroduced this arch style into the architecture scene.



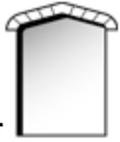
Roman

Roman arches are semi-circular and were first used widely by Roman engineers. Using arches and concrete, the Romans were able to build on a previously unseen scale. This rounded arch style is seen today in the Spanish Colonial architectural style and the Richardsonian Romanesque style, as well as others based on Classical Roman architecture.



Segmental

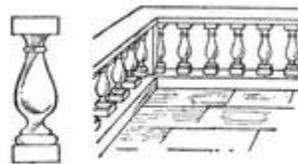
Segmental arches have a partial curve, like an eyebrow. One of the earliest examples of a segmental arch in the West is the Ponte Vecchio Bridge in Florence, Italy, which was built in the 14th century.



Tudor

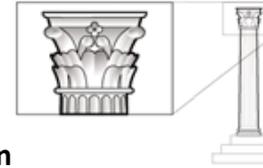
Tudor arches have a low point and are seen mostly on Tudor Revival and Gothic Revival styles of architecture, both popular in the late 19th and early 20th centuries in America. These arches are based on the architecture of the English Tudor period of the 16th century.

Balustrade- A balustrade is a row of repeating balusters – small posts that support the upper rail of a railing. Staircases and porches often have balustrades



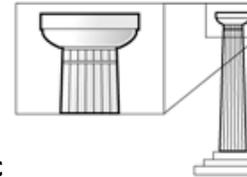
Baluster and balustrade

Columns – are vertical support structures for a building. Of course, they also serve a decorative purpose. A column typically has three parts: the base (the bottom), the shaft (the middle), and the capital (the top). The shaft of a column can be fluted or plain, as you will see in the various column styles outlined here. A pilaster projects from a wall and resembles a column, but is strictly decorative and not structural.



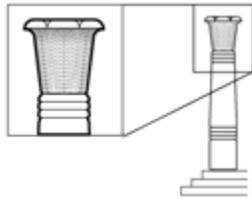
Corinthian

Corinthian columns have capitals with two rows of carved acanthus leaves and four spirals sprouting over the leaves. This style of column was originally Greek but used most widely by the Romans.



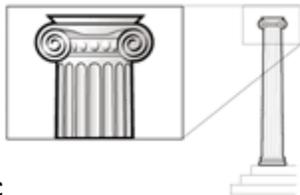
Doric

Doric columns are used in the Doric order of Architecture (one of the three widely seen Classical orders of architecture originating from ancient Greece). Doric columns have capitals with a simple curved molding. They were more typical of ancient Greek architecture than of Roman architecture.



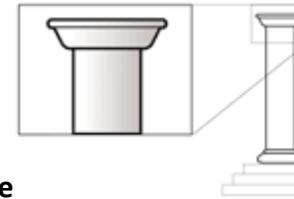
Egyptian

Egyptian columns often have a lotus motif on the capital. Originally used during Ancient Egyptian times, this style re-appeared during the Egyptian Revival period, seen during the late 18th and 19th centuries, as well as in the Art Deco style, in the early to mid 20th century. They became particularly fashionable, along with all things Egyptian, in the years following Howard Carter's discovery of King Tutankhamen's tomb in 1922.



Ionic

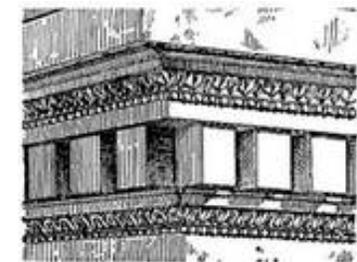
Ionic columns have a capital with two spirals, called volutes, and relatively slender shafts. The Ionic Order of architecture was seen during both ancient Greek and Roman civilizations. In Greek architecture the shafts are more likely to be fluted and in Roman architecture they are more likely to be plain.



Romanesque

Romanesque columns were originally seen in the Romanesque style of architecture in Western Europe from the 9th to the 12th century. Romanesque, also known as "Norman" in France and England, had a revival in the 1800s where the columns typical of the style (simple curved moldings) were fashionable. The American architect Henry Hobson Richardson (1838 – 1886) put his own spin on the Romanesque style in what is called Richardsonian Romanesque. This style was quite popular in the 19th century.

Dentil Molding- A dentil is one of a series of closely spaced, rectangular blocks that form a molding. Dentil molding usually projects below the cornice, along the roofline of a building. However, dentil molding can form a decorative band anywhere on the structure.



Dormers – are windows that jut out from the roof of a home, and have a roof of their own. The word comes from the Latin “dormitorium” meaning “sleeping room,” because dormers often bring space and light to bedrooms. For decorating purposes, a dormer creates a cozy spot for a reading chair or a desk.



Eyebrow

Eyebrow dormers have a low upward curve, with no distinct vertical sides, allowing for a curved window that looks much like an eye behind sleepy eyelids. Eyebrow dormers are often seen in shingled roofs particularly in the Shingle style of architecture popular in the late 19th century.



Gable

Gable dormers have a gabled roof, with two sloping planes that meet at a central ridge. During the English Tudor period in the 16th century, dormers with gable roofs were typical.



Hipped

Hipped dormers have a hipped roof with three sloping planes that meet at the top. Prairie Style and Craftsman houses will sometimes have hipped dormers, as will most homes with a hipped roof.



Inset

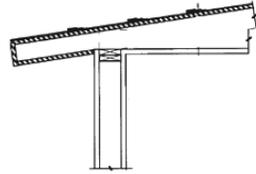
Inset dormers are also called recessed dormers. Unlike most other dormers, which extend out from a roof, this style is set back into the roof, creating a much different look.



Shed

Shed dormers have a roof with a single sloping plane that extends over the window. This style of dormer is seen in a wide variety of architectural styles including Arts and Crafts and Colonial Revival.

Eaves- The projecting overhang at the lower edge of a roof.



Molding (Moulding) – used to create shadow and definition on a surface, to separate elements, to cover unsightly seams, and to bring decorative detail into a room. In modern architecture, molding is used less than it is in decorative, traditional styles. Some typical uses for molding are door and window casings, crown molding (at the highest point on a wall), baseboards (at the lowest point on the wall), and on furniture.



Cavetto

Cavetto is a concave molding that is a quarter-round. It is used for crown molding as a transition from wall to ceiling planes

Cyma Recta

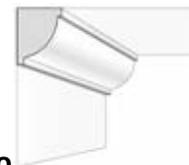


Cyma recta has a concave curve over a convex curve. It is essentially a cavetto over an ovolo and was traditionally used in Classical architecture in the cornice and architrave.



Cyma Reversa

Cyma reversa, also called an Ogee, is the opposite of cyma recta; it has a convex curve over a concave curve. Like Cyma Recta, it was used in Classical architecture in the cornice or architrave of a building.



Ovolo

Ovolo is a convex molding that is a quarter-round. It is a Classical molding that is often seen with decorative motif on it.



Scotia

Scotia is a concave molding that curves to a half-round creating a semi-circle or half an ellipse. It was typically used in Classical architecture at the base of a column.



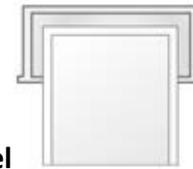
Torus

Torus is a convex molding that is a semi-circle or semi-ellipse. It might be used along the lower section of a cabinet and was commonly seen in the base of Classical columns.



Hood

Hood molding is the projection from a wall over an arch. This type of molding, seen typically in Gothic architecture, was used to protect the archway from rainwater. It also serves as a decorative frame for the top of an arch.

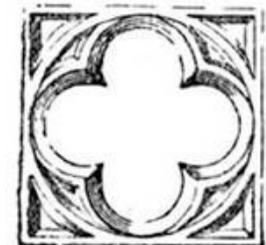


Label

Label molding is a horizontal projection over a window or doorway that drops vertically to about one-third of the way down the sides of the opening. This type of molding, like hood molding, is used to divert rainwater away from a doorway or window. Label molding was used in Gothic and Tudor architecture.

Parapet – A parapet is a wall-like barrier at the edge of a roof, terrace, balcony or other structure. Where extending above a roof, it may simply be the portion of an exterior wall that continues above the line of the roof surface, or may be a continuation of a vertical feature beneath the roof such as a fire wall or party wall.

Quatrefoil window- A quatrefoil window is a round window that is composed of four equal lobes, like a four-petal flower. The quatrefoil pattern is common in Moorish and Gothic architecture. Also, many [Mission style](#) homes have quatrefoil windows.



Roofs – serve an important utilitarian purpose: keeping rain, snow, and debris out of the house. But they also add to the character and style of a home. The roofing material is an important design element and an indication of how long the roof will last. A slate roof, for example, can last from 70 to 125 years and is relatively expensive. Whereas an asphalt tile roof is less expensive and will last typically from 15 to 50 years depending on the warrantee life.



Cross Gable

Cross gable roofs have two or more gable rooflines that intersect. A house with a basic gable roof will have a rectangular shape, but a house with a cross gable roof can have a more complex shape and therefore a more complex layout.



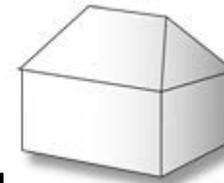
Front-Gabled

Front-gabled houses have a gable roof and the front door is under the gable. The gable is the area at the front and back of the house beneath the pitched roof that follows the roofline; it is typically triangular. A gable roof is very common and has two sloping planes that meet in a central ridge.



Gambrel

Gambrel roofs have a shallow slope over a steep slope. It is typical of the Dutch colonial architectural style and is frequently seen on barns.



Hipped

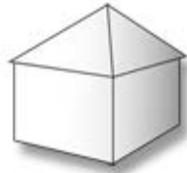
Hipped roofs slope in four directions. The "hip" is the angle formed where two sloped sides meet. This roof is used with many different architectural styles and is said to stand up to hurricane winds better than a gable roof.



Mansard

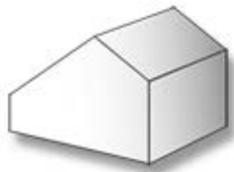
Mansard roofs have four sloping sides, like a hipped roof, and each side has a shallow slope over a steep slope, similar to a gambrel roof. There are almost always dormers in a mansard roof. Mansard is named after the French architect Francois

Mansart (1598-1666), who was known to use this style of roof. This roof style was particularly popular in the latter half of the 19th century, and is often seen on Victorian row houses.



Pavilion Hipped

Pavilion-hipped roofs have four sloping planes that meet at a single point. They are sometimes also called pyramid-hipped roofs and are typically used on smaller buildings such as a garage or pool house.



Saltbox

Saltbox roofs are typical of colonial architecture in New England. A saltbox house is two stories high in the front and has a low sloping roofline at the back of the house. The style is named after its resemblance to saltboxes, used in colonial times.



Side-Gabled

Side gabled is descriptive word for a house with its front door under the side of a gabled roof. Examples can be seen in many residential styles, from a ranch house to a Georgian house.

Spindlework – Lacy, decorative spandrels and knob-like beads

Windows – are one of the most prominent features of a home. Windows bring light and air to an interior space and provide a view of the outdoor scenery. In older houses, windows may have just one layer of glass per pane, which is called single glazing. More contemporary and energy efficient windows have two layers of glass per pane, or double glazing. Low-emission glass, referred to as "Low-E" glass, has a special coating that allows light to enter a room but prevents heat from escaping.



Bay

Bay windows project from the side of a house, adding light and extra square footage to a room. The area inside a bay window creates a cozy nook well-suited for a window seat or a dining area.



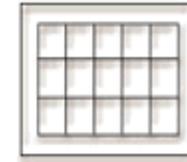
Bow

Bow windows project from the side of a building like a bay window, only with a curved shape. It is typically more expensive to build a bow window than a bay window.



Box Bay

Box bay windows project from the side of a house. They have a square shape with 90° angles at the corners. The shape of the window creates a shelf that is ideal for additional space in front of a kitchen sink or a desk.



Casement

Casement windows hinge on one side of the window frame and open like a door. These are widely used in both traditional and contemporary design. Casement windows are typical of the Tudor style of architecture and are particularly convenient over a kitchen sink where it is easier to open a window with a hand crank than to lean over a countertop and push up.



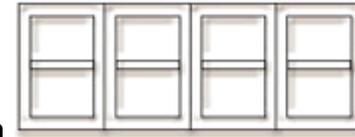
Double - hung

Double-hung windows have two sashes that slide up and down vertically. Early double hung windows had many panes of glass per sash and were called "12 over 12," meaning 12 panes per sash. This is a common type of window that is quite versatile, as you can open it a little or a lot, from either the top or the bottom.



Oriel

Oriel windows project from the side of a building, like a bay window, but are located on the second floor or higher and are supported by brackets or columns. Oriel windows bring added light and space into a room and have been used in many styles of architecture.



Ribbon

Ribbon windows are a row of windows separated by vertical posts, called mullions. Ribbon windows can be used toward the top of a wall to bring added light to a room. Windows installed near the ceiling like this are called clerestory windows.



Paired

Paired windows are two windows located next to each other, often times under an arch. The support between the windows is called a mullion.



Palladian

Palladian windows are named after the 16th century Italian architect Andrea Palladio, who used this window design in developing what is known as the Palladian style of architecture. This window will be a focal point in a room and has been widely used in a variety of traditional architectural styles.

Citations

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